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ABSTRACT

This report summarizes results of evaluations of the Texas Nutrition Education and Training (NET) Program activities completed during federal fiscal year 1989. In the evaluations, the number of individuals participating in NET activities was compared to preset goals to assess the degree of program goal attainment. The volume of materials distributed by NET was monitored and compared to that of past years. Participant knowledge, attitudes, and behaviors before and after NET workshops were compared. Users of the NET lending library were asked for feedback, and the collection was updated so as to better meet users' needs. Results of evaluations were examined in a meta-analysis designed to portray overall effectiveness of the NET program in 1989. Findings indicated that participation in the program far exceeded expectations. The number of materials distributed decreased in comparison to 1988 but remained above that of 1985. Participants' child nutrition knowledge, attitudes, and behaviors were found to have improved. A total of 46 of 52 analyses of NET program effectiveness showed positive outcomes. Four appendixes comprising the bulk of the document consist of reports on program participation for the year under study, workshop performance for participants in the Child Care Food Program and National School Lunch Program, workshop performance for day home sponsors, and the updating of the NET lending library collection. (RH)

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FINAL EVALUATION REPORT: EFFECTIVENESS OF THE NUTRITION EDUCATION AND TRAINING (NET) PROGRAM FOR FISCAL YEAR 1989

December 1989

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EXECUTIVE SUMMARY

BACKGROUND

The Nutrition Education and Training (NET) Program shares its goals with the other Child Nutrition Programs (CNP) sponsored by the United States Department of Agriculture (USDA): to prevent disease and enhance the well-being of the nation's children through improved nutritional status. Among the actions taken by the Texas NET Program, to increase children's opportunities to learn about and practice healthy eating habits, are the following: offering no-cost workshops to food services personnel, educators, and day home sponsors and providers; lending library services; and providing materials to educators and food service personnel in day care centers, registered family homes, residential child care institutions, and public and private schools that participate in one or more of the reimbursement programs operated by USDA.

Participating states are required by existing federal legislation to: (a) evaluate their NET Programs, (b) use resulting information for program improvement purposes, and (c) share information about program successes and relative weaknesses. This report summarizes the results of evaluations completed during federal fiscal year (FFY) 1989, and considers the findings from those studies collectively in a meta-analysis.

DESCRIPTION OF 1989 EVALUATION STUDIES

To meet federal requirements and fulfill the most recent state plan for efficient program management, the following evaluation studies of NET activities and participation were completed in 1989.

- The number of individuals participating in NET program activities was compared to preset goals to assess the degree of program goal attainment (NET Program objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 4.2).

- The volume of materials distributed by NET was monitored and compared to that of past years (NET Program objectives 1.2, 2.1, 3.1, 4.3).

- Participant knowledge, attitudes, and behaviors were compared before and after selected NET workshops (NET Program objectives 2.1, 3.1).

- Users of the NET lending library were asked for feedback about the services, and the collection was updated so as to better meet their needs (NET Program objectives 2.2, 3.2, 4.2).

- The results of the preceding studies were examined collectively in a meta-analysis to portray overall effectiveness of the NET Program in 1989 (all objectives).

CENTRAL FINDINGS

Results from the FFY 1989 studies are summarized in the following list.

- **Participation in the program far exceeded expectations:** more than twice as many people were reached in FFY 1989 as had been reached in FFY 1988, and this was almost four times as many as the baseline year of FFY 1985--in spite of the fact that program staffing was reduced relative to 1985!

- **The number of materials distributed decreased compared to FFY 1988 but remained above that reported in FFY 1985.** This finding was understood to be a function of decreased workshop participation.

- **Child-nutrition-related knowledge, attitudes and behaviors of NET workshop participants were found to improve,** although results were neither perfectly consistent nor, in the case of menu planning behaviors, maintained over time without further support from NET.

- **The lending library collection was updated,** and a number of themes were identified that distinguished poorly performing items from those that performed satisfactorily. In addition, the library user's feedback form was revised to minimize the amount of time required for completion.

- **Forty-six of the 52 analyses of NET program effectiveness showed positive outcomes,** and none revealed negative effects of program participation.

CONCLUSIONS AND RECOMMENDATIONS

When the 1989 evaluation studies are considered collectively, the overall success of the Texas NET program becomes clear. Specific recommendations for continued program effectiveness are incorporated into each evaluation report that is appended to this overview. Among those generally deserving of attention are:

- Library participation goals may need to be revised upwards, especially if the apparent trend of increased usage with public school children continues into 1990.

- So that NET workshops will continue to attract the attention of educators--whether they are in public schools, private schools, or child care centers--workshops may need to be better publicized (perhaps through NET brochures) and coordination efforts with other appropriate agencies and groups needs to be maintained.

- Additional consideration should be given to ways to expand or modify the KABINS evaluation model, so that findings inconsistent with the path it prescribes may be better understood, and so that critical factors influencing and maintaining behavioral change may be identified.

BACKGROUND

NET is the educational arm of the Child Nutrition Programs (CNP) operated by USDA. The other branches of CNP include the National School Lunch Program (NSLP), the School Breakfast Program (SBP), the Special Milk Program (SMP), the Summer Food Program (SFP), and the Child Care Food Program (CCFP); all of these reimburse non-profit schools and child care facilities for the expenses they incur by serving meals and snacks that meet USDA's nutrition and food service requirements.

The NET Program, as currently structured, is designed to support and enhance the reimbursement programs by providing resources and information to:

- o teach children the relationship between food and health;
- o train child care and food service personnel about nutrition and sound food service management;
- o instruct educators in both the content and process of nutrition education; and,
- o develop and use nutrition curricula, menu planning aids, and related materials.

Together, the NET Program and the reimbursement programs help ensure that children have opportunities to learn about and to practice good eating habits in schools and child care settings. By enabling and encouraging children to eat well-balanced diets, these programs work toward the common goal of optimal health and well-being of the nation's children through improved nutritional status.

The NET Program has been functioning since 1977, when authorized by an amendment to the Child Nutrition Act (P.L. 95-166). It was under continuing resolution in Congress until this past year, when the program was reauthorized. Although the amount of funding called for in the reauthorization would substantially increase each state's allocation over the next two fiscal years, actual funding levels remain unclear: the appropriations bill has not been completed, and it is possible that the federal allocation for NET may be reduced by 5.4 percent as all mandated Gramm-Rudman budget cuts take effect.

The Texas Department of Human Services (DHS) became active in the NET Program in 1979, when it received a grant from the Texas Education Agency (TEA) to expand Texas's public-school-based program into child care facilities. In 1982, when the federal appropriation for the program was reduced from $15 million to $5 million, TEA relinquished participation and DHS assumed responsibility for all Texas NET Program activities. Program funding has increased slightly since 1985, as a function of Texas

NET's receipt of reallocated funds from USDA when other states have failed to exhaust their allocations.

Workshops, lending library services, and distribution of materials are the core activities of the Texas NET Program. These activities are developed and managed by three full-time nutritionists, with support from one full-time system support specialist, one full-time workshop assistant, one full-time evaluator, one half-time evaluation clerk (vacant), and one half-time library clerk, at the DHS offices in Austin. The program currently has contracts with 16 consulting nutritionists, each of whom works approximately one-tenth of full time. The contract nutritionists conduct NET workshops in their local communities, evaluate materials for acquisition and use by the NET Program, and assist with other special projects or development activities.

PURPOSE OF THE EVALUATION

The Texas Nutrition Education and Training (NET) Program is evaluated annually for three selected purposes:

- to determine the effectiveness of program activities occurring during the year,
- to identify areas where changes can be made to improve program performance during the year, and,
- to assess nutrition education and training needs in Texas schools and child care facilities participating in the Child Nutrition Programs (CNP) of the United States Department of Agriculture (USDA).

The Texas NET Program evaluation is responsive to federal requirements and information needs, as well. It is developed within the guidelines furnished by federal documents, such as The Idea Book: Sharing Nutrition Education Experiences (1981) and A Guide to Evaluation in the Expanded Food and Nutrition Education Program (1983). Thus, it furnishes the kinds of information the General Accounting Office (GAO) identified in a 1982 report as being necessary for effective program administration, program

planning, accountability, and maximum impact of federal funds, as well as being useful for congressional decision-making with regard to apportioning scarce resources.

During 1989, several studies were conducted to respond to the following questions about performance of the Texas NET program (all taken from page 5 of the 1989 NET Evaluation Plan):

1. How many NET materials were distributed to teachers, other educators, and food service personnel in schools and child care facilities? Also, how useful did recipients find selected sets of NET materials?

2. To what extent did the NET Program achieve its participation goals for FFY 1989, as stated in the 1988-1989 program plan?

3. How well did each of the following workshops perform in helping CNP participants master nutrition education learning objectives:

   (a) Kitchen Math and Food Purchasing,

   (b) Menu Planning and Kitchen Economy,

   (c) Advanced Menu Planning,

   (d) Meal Pattern Requirements for Day Home Sponsors, and,

   (e) Leader Nutrients/NET Lending Library: A Workshop for Day Home Sponsors?

4. How current/useful are the materials contained in the NET Lending Library?

Each of the studies designed to respond to these evaluation questions yielded results specific to delimited aspects of the NET program. In order to have a better sense of overall program functioning, the present report integrates those results in a single meta-analysis that views NET from a more holistic perspective. Consequently, general recommendations emerge that can

assist in strategic planning of the NET program during the current two-year planning horizon.

PROCEDURES

The vote counting method for program meta-analysis was employed to integrate results of the discrete studies conducted during FFY 1989. This is fundamentally understood as a cumulative tallying of outcomes by type (positive, negative, no significant differences). The studies completed in 1989 incorporated a number of data sources, data collection techniques, and methods of analysis, as described below. The study numbers relate back to the specific evaluation questions addressed by each.

STUDY 1 - ACTIVITIES/MATERIALS

Because the printing and distribution of the new NET materials did not occur before the end of the third quarter of FFY 1989 (a condition specified in the 1989 NET Evaluation Plan), the evaluation study concerning NET ethnic recipes was postponed until FFY 1990. This was done to help ensure that the family day home providers targeted to receive the recipe cards will have had them for an adequate amount of time before being asked to evaluate them.

The second component of the first evaluation study was completed. It simply required a comparison of the number of materials distributed in FFY 1989 to past distribution volume; the results are presented in tabular format in this report. These data were maintained in the Southwest Tech and/or Unisys mainframe computer systems, and were updated on a monthly basis from workshop registration forms and library feedback forms.

STUDY 2 - PARTICIPATION

Information about participation for the 1989 FNS-42 report, required by USDA, was used in this study. The information was extracted from two main sources: (a) reports generated by NET Program staff from their workshop data base and (b) the data base comprised of information from the NET library user's feedback forms. These data were submitted to goal-percentaging procedures

after the counts were unduplicated, by applying formulae developed in previous years. The percentage of goal attainment was calculated by program activity and by target group.

STUDY 3 - WORKSHOP EFFECTIVENESS

A number of discrete procedures were required to evaluate the NET program workshops included in this study, although all involved comparisons in performance on paper-and-pencil tests of knowledge or attitudes before and after the workshops, using repeated-measures analysis of variance. Criterion-referenced comparisons also were made, of actual performance against preset criteria for "acceptable" (defined as 70% correct responses) and "ideal" (defined as 90% correct responses) outcomes. The only behavioral data collected were from CCFP participants' menu records (forms 1530), which were coded for compliance with CCFP meal pattern requirements as well as for the nutritional value of the meals reported to be served. Behavioral data were analyzed with repeated-measures analyses of variance and covariance. Participant satisfaction with each workshop was assessed via the standard DHS training evaluation form (form 4316); these data were subject to descriptive statistical procedures and compared against preset criteria.

STUDY 4 - LIBRARY

Two discrete sets of procedures were necessary to complete Study 4.

First, targeted items in the NET collection were assessed against a checklist that contained weighted criteria, including whether or not a given item was ever checked out for use by a patron and the item's relative age (5-9 years old, 10-14 years old, or 15 or more years old). NET Program staff developed a decision-making scheme using the checklist data so that items with the worst checklist scores were purged from the collection. Afterwards, the initial critiques of these materials (made by nutritionists under contract with the NET Program) were compared to a random sample of critiques of items being retained in the library, for the purpose of identifying themes that discriminated between the two.

Second, feedback was solicited from users of the lending library collection on an on-going basis. All users of the library were provided with written questionnaires (one for each item borrowed) for completion and return. Descriptive statistics were computed from these data after entry into the Unisys mainframe.

STUDY 5 - META-ANALYSIS

To combine the results of the previous four studies and obtain a view of the entire program in FFY 1989, the voting method (a tally system) for meta-analysis was applied. That is, counts were made of all findings in Studies 1 - 4 that were positive, negative, or nonsignificant. The modal category (positive, negative, or nonsignificant) was accepted as giving the best estimate of overall NET Program effectiveness in FFY 1989.

LIMITATIONS

Each of the evaluation studies had features that limited its ability to provide absolute answers to the evaluation questions. Each also had features that compensated for these limitations.

The repeated measures design for evaluating the impact of NET workshops, in terms of changes in participant knowledge and attitudes, did not include a sample of the population of non-participants. It did not, therefore, control for any effects of history, testing, or statistical regression. (However, the inclusion of both participants and nonparticipants in the study of menu planning behaviors minimized such threats to validity for the study of behavioral change.)

The above-noted limitations are somewhat compensated for by the fact that data collection was anchored to the occurrence of the workshops rather than to a particular calendar date. Because workshops were conducted at various times of the year, history effects could be construed as counterbalanced. Item analyses, criterion references set by NET program staff, and aggregation of scores across individual workshops conducted by different trainers also helped strengthen confidence in conclusions drawn from this single-group design.

The relatively small number of items on the knowledge and attitude scales limited the scope of the evaluation in various

content areas. Because of the need to spend as little workshop time as possible in administering the instruments, they were limited to only 10 to 20 items, a number too small to completely sample the breadth of content areas covered in the workshops. This constraint can only be acknowledged, with the assurance that as workshop curricula are revised, the tests also will be revised.

The major limitation of the voting method of meta-analysis used to synthesize results of Studies 1-4 is that it ignored information about effect size. However, this method remains one of the best available for developing a summary statement about program effectiveness when data are being aggregated across discrete studies that employed different designs, instrumentation, and procedures.

RESULTS

In 1989, NET program funding and staffing levels remained essentially comparable to those of 1988. Relative to the baseline year of 1985, however, the 1989 staffing was reduced while available funding was increased as a function of USDA's reallocation procedures. NET's productivity this year generally remained high, and its reach (in terms of people benefiting from NET resources and services) far surpassed that of all previous years. More specific information is reported below in relation to each of the studies completed during FFY 1989.

STUDY 1 - ACTIVITIES/MATERIALS

An explanation for the increase in NET's level of funding (see Table 1) during this time of federal fiscal restraint may be helpful to the reader. Briefly, USDA's funding formula for the NET program is based on the number of school children in the state. However, as noted above, Texas NET has been able to receive small amounts of additional funding each year that other states have returned unused NET funds to USDA for reallocation.

A number of state-level organizational constraints, concurrent with the increase in program funding, necessitated a reduction in NET staffing from nine full-time equivalent positions in 1985 (one

Table 1

NET RESOURCES AND ACTIVITIES OVER TIME

Resources	FFY85	FFY86	FFY87	FFY88	FFY89
BUDGET	294,060	294,060	295,860	315,290	315,000
STAFFING					
Coordinator	1.000	.300	.125	.750	1.000
Program Specialists	2.000	1.500	2.000	2.000	2.000
Evaluator	1.000	1.000	1.000	.850	1.000
Clerical Support	3.000	2.670	3.000	3.000	2.500
Consulting Nutritionists	2.000	1.900	1.800	1.600	1.600
	9.000	7.370	7.925	8.200	8.100
Activities					
WORKSHOPS					
Developed	2	2	3	1	2
Conducted	165	145	185	183	112
LIBRARY					
Acquisitions			180	420	68
Items Circulated/Month	70	100	100	150	189
Borrowers/Month	6	25	20	50	60
Catalogs Distributed	10,000	12,000	680	200	632
MATERIALS					
Acquisitions	5	5	15		5
Distributions	9,700	10,800	12,800	17,200	11,800
SPECIAL PROJECTS					
Mini-grants/Development Contracts	3	3	2	0	1
Evaluation/Needs Assessment Studies	6	7	6	5	5
Persons Reached	6,200	9,700	10,900	10,300	23,343

program coordinator, two program specialists, one evaluator, three clerical and administrative support staff, and 20 consulting nutritionists, each at approximately 1/10 of full-time) to approximately eight full-time equivalents (FTEs) in 1989. Support staff and consulting nutritionists were reduced. Nonetheless, the program continued to show strength in the numbers of library items circulated each month, and number of nutrition and food service management materials distributed.

In 1989, 112 workshops were conducted for about 1,450 educators and food service personnel. Two new workshops were developed for family day home sponsors: "Meal Pattern Requirements for Day Home Sponsors" and "Leader Nutrients/NET Lending Library." These were evaluated, along with three others that had been revised in 1988 for presentation as a series: "Kitchen Math and Food Purchasing," "Menu Planning and Kitchen Economy," and "Advanced Menu Planning." The modifications were intended to increase workshop content congruence with the CCFP handbook materials produced by DHS, as well as to create a learning sequence in which each of the later workshops in the series built upon and expanded concepts and skills taught in previous sessions. The later sessions also were conducted separately for participants in the CCFP and NSLP, so that participants' application-level questions could be addressed adequately by workshop instructors.

In part as a function of the lower number of workshops conducted in 1989 relative to 1988, the quantity of NET materials distributed to child care facilities and schools was less than before: 11,800 in 1989 versus 17,200 in 1988. Nonetheless, the nutrition education and food service management books, posters, and pamphlets distributed this past year remained well above the 1985 baseline volume of 9,700 (see Table 1).

NET is reaching more people through materials, workshops and lending library services despite having fewer staff

Sixty-eight more titles were added to the NET lending library collection, after the 420 acquisitions made in 1988. The number of items circulated per month increased from 70 in 1985, to 189 per month in 1989. Similarly, the number of borrowers per month rose from 6 per month in 1985 to about 60 per month in 1989 (see Table 1).

The net result of this high level of productivity and efficient use of staff time and resources is that **nearly four times as many people were reached with NET services and resources in 1989 (over 23,000) as had been reached in 1985 (6,200).** The participation was double that reported one year ago in 1989. The information described in this section of the report has been summarized in Table 1.

STUDY 2 - PARTICIPATION

Participation in the Texas NET program was generally improved relative to past years: **an overall average of more than 69 percent of participation goal attainment was observed during FFY 1989, representing about a four percent increase over 1988.** The library was especially strong in reaching Texas children, whereas workshop participation by low-priority target groups was lower than in past years.

Participation in NET activities has substantially increased

Overall participation in the Texas NET program has increased substantially since 1985 (from 6200 to more than 23000) and more than doubled in the last year. Even so, on average the program achieved only about 69 percent of its participation goals (see Table 2). The program showed particular strength in its ability to reach children through the lending library collection. Based upon experience in prior years and on priorities set for FFY 1989, the goal was to reach at least 2000 children. The program succeeded, however, in reaching about eight times more children than that: over 16000 of them in public and private schools and child care facilities. In addition, approximately 3440 educators, 3417 food service workers, and 171 parents and other individuals were reached with NET resources during this past fiscal year.

Participation in NET workshops exceeded goals for educators in child care centers and for food service workers in private schools. Participation relative to goals was lowest among food service workers in public schools and child care facilities, and among private school educators, although the first of these three target groups represented NET's lowest priority group for receiving workshops. In general, the vast majority of NET workshop participants were from child care facilities (almost 64 percent)

Table 2
PERCENT GOAL ATTAINMENT FOR NET ACTIVITIES DURING 1989

	Public Schools			Private Schools			Child Care			Average
	*85	89/G	= %	85	89/G	= %	85	89/G	= %	%
Workshops										
Children	--	--/--	--	--	--/--	--	--	--/--	--	58
Educators	64	361/500	72	271	22/95	23	1241	700/655	100	
Food Service	5	28/400	7	233	116/100	100	264	225/500	45	
Library										78
Children	864	14753/800	100	365	180/0	100	1289	1382/1200	100	
Educators	85	2317/280	100	0	14/0	100	102	26/420	6	
Food Service	356	2862/200	100	0	0/120	0	79	186/180	100	
Average			76			65			70	
Grand Average										69.4

*Key: 85: Number of participants in 1985

89/G: Number of participants in 1989 over participation goal for 1989

and private schools. About 10.5 percent of all workshop participants were educators in public schools, double the percentage seen in 1985 but less than half that of 1988. Continued coordination with TEA, and the approval of new workshop curricula for AAT credits, will probably serve to boost the participation of this group in NET workshops. Publicity about NET workshops, by way of distribution of brochures (planned to be ready in the next two years), should also help to promote the participation of educators in private school settings.

Relative to workshop performance, the NET library was more successful in reaching its participation goals. Specifically, seven out of nine goals were met or exceeded, whereas only two out of six workshop goals were met or exceeded. In terms of average percentages of goal attainment, the library achieved an average of 78 percent goal attainment while workshops achieved an average of 58 percent goal attainment.

Nevertheless, across the board NET has been reaching ever-increasing numbers of children, educators, and food service personnel. Compared to 1985, NET reached about six and one-half times as many children, twice as many educators, and about three and one-half times as many food service personnel. Even compared to the most recent fiscal year, NET has clearly broadened its impact: three times as many children, almost three times as many educators, and one and one-third times as many food service staff were reached in 1989 compared to 1988.

Additional information about participation in the NET program during FFY 1989 can be found in Appendix A of this summary report, entitled "Participation in the Texas NET Program from October 1988 through September 1989."

STUDY 3 - WORKSHOP EFFECTIVENESS

Workshops were effective in promoting some desired changes in child-nutrition-related knowledge, attitudes and behaviors of day home sponsors, educators and child care food service personnel. Seven out of nine statistical analyses of knowledge test results showed significantly improved performance on posttests and follow-up tests. Eight of nine criterion-referenced analyses showed increased percentages of participants achieving acceptable and

ideal knowledge test performance following workshop attendance. Participant attitude scale scores were found to significantly improve in eight out of nine statistical analyses, and percentages of participants achieving acceptable and ideal scores on the attitude scales were observed to increase after the workshops in all nine criterion-referenced analyses. Menu planning behaviors of CCFP participants were found to improve in the area of compliance with CCFP meal pattern requirements, though the improvements were not sustained over time without further assistance or support from the NET program. Nutritional value of meals reported to be served on forms 1530 did not significantly improve after training. Thus, the data suggest that the workshops generally improve participant readiness to better meet the nutrition and nutrition education needs of children, though other factors mitigate participants' ability to transfer benefits of training to on-the-job performance.

Workshops improved participants' readiness--knowledge and attitudes improved--but they were only partially successful in applying new knowledge to menu planning on-the-job

Effects of Specific Workshops in Terms of Knowledge, Attitudes, Satisfaction and Behaviors

This year, two series of workshops were evaluated. The first was comprised of "Kitchen Math and Food Purchasing," "Menu Planning and Kitchen Economy," and "Advanced Menu Planning." The series was directed towards food service personnel in either the CCFP or NSLP components of the CNP. The second series consisted of two workshop sessions for day home sponsors, called "Meal Pattern Requirements for Day Home Sponsors" and "Leader Nutrients/NET Lending Library."

Statistically significant improvements were noted in the knowledge test performance of participants in the Kitchen Math and Food Purchasing workshop, such that after the workshop almost half (43 percent) had achieved the criterion for ideal test performance (none had met it at pretest). Statistically significant improvements also were noted in the participants' attitude scale scores: one and one-half times as many met the criteria for either acceptable or ideal performance after the workshop, as had before.

When data were pooled across CNP programs (that is, data for CCFP participants were mixed with those for NSLP participants), the

Menu Planning and Kitchen Economy workshop was found effective in improving workshop participants' knowledge test and attitude scale scores. About one-third of all respondents met the knowledge test criterion for acceptable performance after the workshop, while fewer than 10 percent had done so before the workshop. Attitude scale scores improved from about 46 to over 49 points (out of the maximum score of 65) after the workshop.

The Advanced Menu Planning workshop was perhaps the most successful of the three workshops in this series: the average follow-up knowledge test score (pooled across CNP programs) was slightly better than 14 correct answers out of 17. Almost three-quarters of all respondents (72.4 percent) achieved the criterion for acceptable performance on the post-workshop assessment of attitudes.

Satisfaction with the three workshops in this series (Kitchen Math and Food Purchasing, Menu Planning and Kitchen Economy, and Advanced Menu Planning) was consistently high. Out of a maximum possible rating of 20 points on DHS training evaluation form 4316, the average workshop ratings were 18.4, 19.2, and 18.4, respectively.

CCFP workshop participants' menu records (forms 1530) were found to be more compliant with meal pattern requirements after the series than were records from centers whose staff had not attended the workshops. However, the behavioral differences were not maintained at follow-up. Additionally, the nutritional value of the meals recorded on the forms were not found to differ across workshop and comparison groups. Children consuming those meals would likely not have obtained sufficient amounts of calories, iron, thiamin, or niacin for good health, unless they consumed second helpings of every food served (it is not uncommon for centers to make second helpings available to the children).

The Meal Pattern Requirements for Day Home Sponsors workshop was unsuccessful in improving participant knowledge, and scores on the knowledge tests generally were very low--the average number of correct responses was about 6 out of 15 on the follow-up assessment. In contrast, the workshop did significantly boost participants' attitudes: posttest attitude scale scores averaged nearly 54 points out of 60.

Day home sponsors' knowledge and attitudes improved as a result of attending the second workshop, Leader Nutrients/NET Lending Library. In this case, performance on the knowledge test significantly improved over time, with the average follow-up test score better than 12 out of 15 possible correct answers. One-hundred percent of the participants met the criterion for acceptable performance on the attitude scale after the workshop, and over 81 percent met the criterion for ideal performance on the attitude posttest.

Satisfaction with both sessions in the series for day home sponsors was uniformly high. Nearly 48 percent of the attendees who completed form 4316 gave ideal ratings to the first workshop, while 52 percent gave ideal ratings to the second.

More information about effectiveness of the two NET workshop series can be found in Appendix B, "Performance of Selected Nutrition Education and Training Program Workshops for Participants in the Child Care Food Program and National School Lunch Program," and in Appendix C, "Effectiveness of Nutrition Education and Training Program Workshops for Day Home Sponsors."

STUDY 4 - LIBRARY

The NET lending library became a more frequently-used resource this year than it has ever been. Circulation increased for the second consecutive year, both in terms of the number of items circulated each month (N = 189) and in terms of the number of borrowers per month (N = 60). Slightly more than 89 percent of the borrowers who completed the user's feedback forms rated the materials they used to be good or excellent. When asked on the revised, 1989 form to more specifically rate the substance and usefulness of the items they borrowed, nearly 95 percent found the substance to be good or excellent and more than 92 percent reported the items to be useful. Those completing the revised forms (about half of the 573 forms returned in FFY 1989) also rated their satisfaction with the items to be good or excellent. More audio-visual materials were used than any other type of material available in the collection, and themes appropriate for preschool children were most popular.

Library usage reached a new peak and users were satisfied with the service and items

The number of lending library catalogs distributed in 1989 rose relative to 1988: 632 were sent out this year, compared to 200 in 1988. This figure is well below the number sent out during the baseline year, but it must be understood that when the catalogs were new (1985 and 1986), they were distributed in mass mailings to all Texas school districts, regional educational service centers, and so forth. There was no need to duplicate this mailing. However, when the updated versions of the catalogs become available--planned for spring 1990--a new mass mailout will occur. The apparent increased demand for the catalogs may indicate that more of NET's target populations are learning about, and desire to use, the collection.

Efforts to update the collection also were realized in 1989. In response to a critical shortage of shelf space, a tentative pool of library items were identified for possible removal from the collection. A checklist including several weighted criteria was developed, assessed for interrater reliability, and used to rate each item in this pool. Cutoff scores were established for various types of library items (e.g., curriculum guides, books or pamphlets, and so on), and those items whose checklist scores were at or above the cutoff were removed from the collection and either donated to area child care centers or, in some cases, destroyed.

A subsequent content analysis was completed using the critiques of library items prepared by contract nutritionists. The critiques of items removed from the collection were compared to a sample of critiques of items retained in the collection. Six themes were identified that distinguished between the two groups:

- apparent degree of flexibility;
- perceived comprehensiveness;
- number of target groups specified in the critique;
- identification of specific shortcomings and strengths;
- presence of value-laden terms; and,
- potential for borrowers to incur additional costs.

Knowledge of the themes will be used in decision-making regarding future acquisitions. Further information about the NET lending library in FFY 1989 may be found in Appendix D, "Updating the NET Lending Library Collection."

ADDITIONAL PROGRAM ACCOMPLISHMENTS

Coordination continues to be a priority for the Texas NET program. Among the efforts directed toward coordination are the following:

- Two NET workshops have been designated as approved by the Texas Education Agency for teachers to earn Advanced Academic Training (AAT) credits, and another is being submitted this year.

- NET program staff are working with the Texas Department of Health's Women, Infants and Children (WIC) program to develop a videotape that will help those receiving services in either program to obtain current nutrition information.

- NET staff continue to attend and present program outcomes at state, regional and national meetings of appropriate professional associations, such as Society for Nutrition Education, American Dietetic Association, American Evaluation Association, and so on. Findings also have been disseminated by way of publication in professional journals.

- NET staff participated on a committee at the Texas Beef Industry Council to help plan nutrition education activities nationwide for preschool children.

- NET worked with the DHS Wellness Program to conduct brown bag lunch seminars on healthy eating habits and diets.

- NET staff participated in a Nutrition Institute developed and conducted by Pennsylvania State University. The curriculum and materials developed there are planned to be implemented in Texas public schools in the next two years.

STUDY 5 - META-ANALYSIS

When data were integrated across the four evaluation studies completed in FFY 1989, the meta-analysis results indicated that the overall impact of the NET program in Texas remains positive. Seventeen of the 21 statistically evaluated program outcomes were significantly positive and none were negative, while 29 of the 31 criterion-referenced analyses were positive, for **a total of 46 positive outcomes out of all 52 outcomes assessed (see Table 3).**

CONCLUSIONS AND RECOMMENDATIONS

The overall impact of the Texas NET program in FFY 1989 was found to be significantly positive, continuing the clear pattern of success established since 1985. Many positive outcomes were measured or detected through criterion-referenced analyses, and no negative outcomes were identified.

- As in years past, NET workshops were found to be a reliable method of improving child-nutrition-related knowledge and attitudes of educators and food service personnel in schools and child care facilities that participate in USDA's reimbursement programs.

- For the first time since NET evaluations have included assessments of menu planning behaviors, workshops were observed to have at least a temporary positive effect: menu records of centers whose staff attended a full NET workshop series were more in compliance with CCFP meal pattern requirements than were a comparable group of menu records from centers whose staff had not attended any workshops.

- The NET lending library attracted more patrons and circulated more nutrition and food service management materials during 1989 than in any previous year.

- The demand for NET services remained high during 1989, with participation of public school personnel and children through the library being particularly strong.

Table 3

SUMMARY OF ANALYSIS RESULTS FOR NET IN 1989

	Knowledge		Attitudes		Behaviors		Satisfaction	
	Stat.	Crit.	Stat.	Crit.	Stat.	Crit.	Stat.	Crit.
Summer Series								
KMFP	++[1]	+	++	+				+
MPKE (pooled)	+[2]	+	++	+				+
- CCFP	+	+	+	+				+
- NSLP	ns[3]	+	++	+			+	+
AMP (pooled)	++	+	++	+				+
- CCFP	++	+	++	+				+
- NSLP	++	+	++	+				+
1530 Compliance (Treatment v. Control)				+				
1530 Nutritional Value (Treatment v. Control)				ns				
Day Home Series								
MPR	ns	-	++	+				+
LN/LL	++	+	ns	+				+
Library Update								
Weedout					+			
Themes					+			
Participation								
Average % goal attainment					+			
Materials								
1989 v. 1988					-			

[1] The "++" in columns about statistical analyses means $p < .01$.
[2] The "+" in columns about statistical analyses means $p < .05$; in columns about criterion-referenced analyses, it means criterion was met or exceeded.
[3] The "ns" means no significant differences were found.

- The NET program increased its coordination activities, by working with other public sector programs and agencies engaged in child-nutrition-related activities. These efforts have been both collaborative (e.g., the videotape being developed together with Texas Department of Health WIC program staff) and supportive (e.g., the translation of external curricular materials into Spanish) in nature.

Achieving milestones such as these has helped the NET program to promote positive changes in the child-nutrition-related knowledge, attitudes, and behaviors of significant numbers of individuals in NET's priority populations. As in years past, NET has excelled in meeting global program objectives:

- More than 14,000 children were reached in presentations based upon materials about food and health that were borrowed from the NET lending library collection.

- Over 1,080 educators in schools and child care facilities participated in NET workshops, often making statistically significant improvements in their knowledge and fostering the development of more positive attitudes to support effective integration of nutrition learning activities into instruction for children at all grade levels. About another 2,350 enhanced their knowledge and/or delivery of instruction through the use of materials borrowed from the NET lending library.

- Approximately 370 food service personnel participated in intensive training obtained through NET's workshop series, thereby learning more about how to plan and serve meals and snacks that are nutritious, appealing, and safe for children in schools and child care settings. Another 3,000 were reached through the lending library, thereby supplementing the impact of NET workshops upon this target group.

Despite these clear successes the need for the program has not diminished in any way, and program improvement remains an on-going process for Texas NET. When these results are considered collectively with those from years past, it becomes apparent that much remains to be done to promote the health and well-being of

Texas children through nutrition education and training activities. After all, finding that 14,000 or more public school children were served this fiscal year still means that as many as three million more might (potentially) have learned about, and practiced, healthy eating habits.

Evaluation studies conducted during 1989 indicate the NET program is more frequently effective in promoting lasting changes in knowledge and attitudes than it is in facilitating long-term or stable changes in child-nutrition-related behaviors, such as menu planning. For instance, only one statistically significant finding about menu planning behaviors, based upon menu records (forms 1530), was noticed out of all analyses of menu records conducted since 1985; whereas the number of statistically significant improvements in knowledge or attitudes this year alone tallied to 15. Of course, it is easier and less costly to investigate performance in the domains of knowledge and attitudes than it is to complete assessments of behaviors each year, so this portrayal of NET's relative weakness may be somewhat slanted.

Slanted or not, however, the number of evaluation findings inconsistent with the KABINS model continued to grow this past year: attitudes were observed to improve in the absence of improved knowledge, and behaviors failed to improve over time when the preconditions for such outcomes were clearly met. **Thus, research and development activities with regard to factors that influence the impact of educational programs, particularly in terms of effecting lasting behavioral change, need to continue.** This would necessarily include participation in conferences and professional meetings where pertinent topics are being discussed and explored, as well as continued publication of program findings for the purpose of inviting scholarly response.

In addition to seeking ways to expand the theoretical model on which the NET program is based, there are changes that can be made in current activities to increase the immediate impact of the program in Texas. **Each of the appendices to this summary report includes discussion of specific strengths and weaknesses of the Texas NET program.** For example, library participation goals may need to be revised upwards in 1990 (see Appendix A), and NET workshops may need to be better publicized to certain groups while coordination efforts with other agencies need to be maintained (see Appendix B and Appendix C). Continued efforts to adjust, improve,

and coordinate NET program activities should add to the program's current efficiency and effectiveness in meeting rising demands for services (the numbers of preschool and school-aged children living in poverty continues to grow each year), thereby increasing its contribution to the health and well-being of Texas children through improved nutritional status.

APPENDIX A

PARTICIPATION IN THE TEXAS NET PROGRAM FROM OCTOBER 1988 THROUGH SEPTEMBER 1989

November 1989

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EXECUTIVE SUMMARY

BACKGROUND

The Texas Nutrition Education and Training (NET) program works synergistically with the reimbursement components of the United States Department of Agriculture's Child Nutrition Programs, so that Texas children have access to adequate nutrition while learning about eating habits that promote their health and well-being. The NET program conducts multiple activities each year targeting various levels in the CNP system. These include providing workshops for public and private school educators and food service personnel, operating a lending library service, and developing and distributing curricula and materials for use in the CNP framework. To meet federal requirements for continued receipt of NET funds, as well as for program accountability and planning, annual participation goals are set for each of the program's major activities and for each of its target populations. These are compared to actual participation data for the year.

STATEMENT OF PURPOSE

This study describes the 1989 level of Texas NET program participation by activity and by target group. The information will be used to adjust program participation goals for 1990 and 1991.

PROCEDURES

Data about staffing levels and participation in federal fiscal year (FFY) 1985 were used in setting goals for FFY 1989. Current staffing levels were employed with baseline ratios, and the resulting products were adjusted to reflect current program priorities. Actual participation data were compared to the goals in computing the percentage of goal attainment this fiscal year.

RESULTS

In 1989, NET served 16315 children, 3440 educators in public or private schools and child care facilities, 3417 food service workers in those settings, and 171 parents or other individuals. This was more than **double** the total number served in FFY 1988, and **nearly four times more** than FFY 1985, despite the fact that fewer staff were working for the program than had been in 1985. The lending library was the source of the increase in NET's outreach, as participation in workshops declined relative to 1985.

RECOMMENDATIONS

It was suggested that renewed emphasis be placed upon the NET workshops, and that library goals be adjusted upwards if the apparent trend of increased participation in 1988 and 1989 continues.

BACKGROUND

The relationship between the reimbursement elements of the United States Department of Agriculture (USDA) Child Nutrition Programs (CNP) and the Nutrition Education and Training (NET) program is reflected in this proverbial saying:

> **Give a man a fish, and he eats for a day. Teach a man to fish, and he eats for a lifetime.**

That is, while the reimbursement programs are designed to give children immediate access to adequate nutrition (and later reimburse schools and child care centers for the costs), the NET program is designed for the long-range purpose of improving children's nutritional status by helping youngsters to learn about and practice healthy eating habits for life.

To achieve this goal, the NET program conducts multiple activities each year targeting various levels in the system:

- **students** are reached directly in brief presentations, as well as indirectly through educators' use of materials received from workshops or borrowed from the NET lending library;
- **educators** in public and private schools and child care centers receive in-service training in topics fundamental to child nutrition and nutrition education;
- **food service personnel** in those settings receive in-service training from NET's contract nutritionists, so that they are better able to serve nutritious, appealing meals and snacks in compliance with CNP regulations; and,
- **curricula and support materials** are developed, distributed to the above target groups, and made available through the lending library collection for use at the local level, further enhancing efforts to teach children about healthy eating habits and simultaneously establishing an appropriate learning environment in which to practice those habits.

Consequently, the amount and proportionality of various groups' participation in NET activities is critical to the program's overall effectiveness in improving children's nutritional status.

The USDA considers the number of persons reached with NET resources to be of paramount importance in program management. That is why states applying for continuing NET program funds are required to submit an annual report--form FNS 42--documenting the

numbers of children, educators, and food service workers receiving NET services each fiscal year. The report must be completed within 90 days of the conclusion of the federal fiscal year in order for the state to receive any subsequent program grant.

Reflecting the federal emphasis on accountability, and also to help insure that the Texas NET program reaches as many school and child care personnel as is practical, annual participation goals are set for each of the program's major activities and for each of its target populations. The goals are an integral part of the state plan and are based on current priorities, current staffing, and prior participation data. Actual participation is monitored and compared to current goals, so that information about goal attainment can be used to help establish plans and objectives for the following year.

STATEMENT OF PURPOSE

The purpose of this report is to describe the level of Texas NET program participation, by activity and by target group, during federal fiscal year (FFY) 1989.

The information contained herein will be used to adjust program participation goals for FFY 1990 and 1991 (the Texas NET program employs a two-year planning horizon).

PROCEDURES

Data about staffing levels and participation in FFY 1985 were used as the baseline in setting goals for FFY 1989. Selecting 1985 as the baseline is appropriate because all of the designated NET staff positions were filled in that year, and evaluation studies found that program performance was optimal.

In the baseline year, there were approximately 6 full-time equivalent (FTE) NET staff positions in support of workshops: a workshop coordinator, program specialist, consulting nutritionists, and clerical staff. Another 2.5 FTEs supported operation of the NET lending library. More than 2,000 individuals participated in NET workshops that year, and another 4,000 or so were reached via library materials. The resulting staff-to-participant ratios were 1:400 for workshops and 1:1500 for library resources.

By 1989, there were only 4.9 FTEs in support of the workshops and 3.2 FTEs for the library. By substituting these figures in the staff-to-participant ratios, the 1989 participation goals for workshops and the library were set at 1900 and 4700, respectively.

Information about program priorities was used in adjusting the goals for different target groups. In 1989, the NET State Plan indicated that approximately 40 percent of program efforts would be directed towards public school populations, while the remainder would be directed towards populations that directly contract with the Texas Department of Human Services (DHS) as sponsors and providers in the reimbursement elements of the CNP.

Goals were created by using NET staff-to-participant ratios and adjusted to reflect program priorities

Another factor considered in setting goals for different population groups was the special series of workshops conducted during the summer and fall of FFY 1989, to address menu planning problems experienced by participants in the Child Care Food Program (CCFP) and the National School Lunch Program (NSLP). These workshops were principally for food service personnel in child care settings and private or public school settings, respectively, so the relative percentages of staff to be reached in workshops was adjusted accordingly.

Finally, adjustments were made in goals for the NET library. Past evaluations indicated that day home providers and child care food service personnel should be encouraged to make more use of the collection. Curricula of selected workshops--such as the new series for day home sponsors in the CCFP--were designed or modified to place increased emphasis on use of the library by members of these priority populations.

Actual participation was compared to goals to determine percentage of goal attainment

Information about actual participation in the Texas NET program during FFY 1989 was taken from the data bases used in preparing the USDA FNS 42 report. Workshop participation data were maintained in computer files on the Southwest Tech system. Monthly reports were printed listing participant roles (e.g., "private school food service personnel") by workshop title so that these could be tallied for the year. Information about the number of participants reached through the NET lending library was developed using data from the library user's feedback form, which were maintained on the Unisys mainframe computer. Actual participation was compared against discrete goals to assess the percentages of goal attainment, and averages were calculated for various sets of goals.

RESULTS

Yearly participation totals for NET since baseline were 6200, 9700, 10900, 10300, and 23172, respectively. In 1989, NET resources and services were delivered to 16315 children, 3440 educators, 3417 food service workers, and 171 parents or other individuals interested in promoting children's health and well being through improved nutrition.

NET's lending library surpassed the participation goals for Texas children

The number of children reached in presentations based upon materials from the NET lending library **far** exceeded expectations (see Table 1)--more than 18 times as many public school children as had been targeted, as well as more children in private schools and child care settings than had been targeted. This is the second consecutive year in which the library has surpassed participation goals for Texas children. The library also was successful in reaching educators and food service workers in the public schools, but was less consistently successful with parallel groups in private schools and child care facilities that participate in the other USDA Child Nutrition Programs administered through DHS. Specifically, the percentage of goal attainment for participation of food service workers in private schools and educators in child care settings was very far below that expected, while library participation goals for all other groups were exceeded. In the baseline year of 1985, 3410 children, educators, and food service personnel were reached through the lending library; by 1989 the number reached through this activity increased to 21720--over **six times as many people.**

Workshop participation decreased, especially among food service staff in child care facilities

These same two groups--food service workers in private schools and educators in child care centers--were the only two whose participation in workshops met or exceeded FFY 1989 participation goals. It is important to note that these two groups are among the highest priority groups for workshop delivery, particularly since the Texas Education Agency (TEA) does not permit food service workers in non-profit private schools to attend its in-service training sessions. Thus, it seems that for a variety of reasons these two groups found the workshops to be a more attractive alternative for receiving NET services than the lending library.

The percentage of goal attainment for workshop participation of all other groups (public school teachers and food service workers, private school educators, and food

Table 1
PERCENT GOAL ATTAINMENT FOR NET ACTIVITIES DURING 1989

	Public Schools			Private Schools			Child Care			Average
	*85	89/G	= %	85	89/G	= %	85	89/G	= %	%
Workshops										
Children	--	--/--	--	--	--/--	--	--	--/--	--	58
Educators	64	361/500	72	271	22/95	23	1241	700/655	100	
Food Service	5	28/400	7	233	116/100	100	264	225/500	45	
Library										78
Children	864	14753/800	100	365	180/0	100	1289	1382/1200	100	
Educators	85	2317/280	100	0	14/0	100	102	26/420	6	
Food Service	356	2862/200	100	0	0/120	0	79	186/180	100	
Average			76			65			70	
Grand Average										69.4

*Key: 85: Number of participants in 1985

89/G: Number of participants in 1989 over participation goal for 1989

service workers in child care facilities) decreased this year, even though the raw number of individuals participating sometimes increased relative to 1988. The percentages of goal attainment most noticeably off the mark were for food service workers in public schools (NET's lowest priority group, because TEA requires them to attend in-service training sessions provided by that agency), food service personnel in child care settings, and educators in private schools that participate in the CNP. Food service workers in child care settings and public schools also showed the greatest reduction in raw numbers of participants. In comparison to the baseline year of FFY 1985, about 70 percent as many people participated in NET workshops (1452 compared to 2070 at baseline).

As shown in Table 2, across all activities the NET program averaged 76 percent goal attainment for public schools (goal attainment was down from 1988), 65 percent goal attainment for private schools (improved goal attainment relative to 1988), and 70 percent goal attainment for child care facilities (also improved relative to 1988). The overall average percent goal attainment for activities and populations was just over 69 percent, representing improved total program performance compared to FFY 1988 (65 percent).

Table 2

PERCENTAGE OF GOAL ATTAINMENT IN 1989

	Children	Educators	Food Service	Average
Groups:				
Public Schools	100	86	53	76
Private Schools	100	61	50	65
Child Care	100	53	72	70
Activities:				
Workshops	N/A	65	51	58
Library	100	69	67	78
AVERAGE:	100	67	59	69.4

CONCLUSIONS AND RECOMMENDATIONS

During 1989 overall participation in the Texas NET program more than doubled compared to 1988, and was nearly four times as great as that seen in the baseline year of 1985.

That such dramatic increases could occur when staffing levels were equal to those of 1988 (approximately 8.1 FTEs), and reduced compared to the baseline year (9.0 FTEs), is testimony to the **efficiency** as well as the **effectiveness** of the Texas NET program.

The most noticeable growth in participation in 1989 occurred in library usage: goals were exceeded for seven out of nine groups. The number of school children reached in presentations based upon the NET lending library was the area of most explosive growth, continuing an apparent trend seen in 1988. It is suggested that, if a third consecutive year of increases in the number of children reached through the library occurs in 1990, the participation goal for this group be increased accordingly.

The near "mirror imaging" of percent goal attainment across library and workshop participation for food service workers in private schools and for child care educators, may warrant some closer scrutiny on the part of NET program staff. It may be beneficial to consider what features make workshops so much more attractive to these groups than the library. Conversely, understanding the relative attractiveness of the library for food service personnel in child care facilities and secondarily in public schools, compared to workshops, also may be useful. For instance, continued efforts at coordination and collaboration with the TEA may improve this situation.

In general, then, the Texas NET program may want to consider the following steps when planning for FFY 1990 and 1991.

- Promote NET workshops more, especially for food service workers in child care facilities and private school educators. The new NET brochures may help to accomplish this.

- Maintain current efforts to coordinate workshop activity with TEA, so that teachers will continue to view NET workshops as viable staff development options in pursuing their Advanced Academic Training (AAT) credits, and so that NET workshops will become more attractive options to private school educators.

- Consider increasing the library participation goals for children in all settings, and most particularly for those

in public schools, provided that the apparent trend of increased levels of participation is maintained over the coming fiscal year.

- Consider ways of reinforcing library usage by food service workers in non-profit private schools and by child care educators. One possibility is the inclusion of a list of pertinent references from the NET lending library with other materials distributed to workshop participants, especially since these two target groups are already strong consumers of NET workshops.

APPENDIX B

PERFORMANCE OF SELECTED NUTRITION EDUCATION AND TRAINING (NET) PROGRAM WORKSHOPS FOR PARTICIPANTS IN THE CHILD CARE FOOD PROGRAM (CCFP) AND NATIONAL SCHOOL LUNCH PROGRAM (NSLP)

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Abstract

Two parallel series of workshops, conducted by the Nutrition Education and Training (NET) Program for Child Care Food Program (CCFP) and National School Lunch Program (NSLP) participants, respectively, were assessed for effectiveness in producing changes in the domains of knowledge, attitudes, satisfaction, and behaviors. Workshops in the series included Kitchen Math and Food Purchasing, Menu Planning and Kitchen Economy, and Advanced Menu Planning. Results indicate high levels of participant satisfaction with all three workshops, as well as statistically significant improvements in child-nutrition-related knowledge and attitudes over time. These findings show that the necessary prerequisites to behavioral changes, as per the standard NET evaluation model, have been met. However, improvement in menu planning behaviors, as recorded on forms 1530, was neither immediately evident nor uniform: there were no differences across workshop and comparison groups in the nutritional value of foods served; children were unlikely to obtain adequate quantities of several key nutrients (e.g., iron, niacin, thiamin) and pre-existing differences were observed between treatment and comparison groups' compliance with CCFP meal pattern requirements. When these were statistically controlled for, the treatment group appeared to do a better job, overall, in complying with CCFP meal pattern requirements shortly after having attended the NET workshop series, though the gains were not sustained over time.

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EXECUTIVE SUMMARY

Three sets of findings from past evaluations have particularly influenced the current efforts of the Texas Nutrition Education and Training (NET) Program. First was the program's strong history of findings which demonstrate the effectiveness of its workshops in promoting the growth of knowledge and attitudes related to nutrition education. Second, the 1986 annual evaluation revealed that menus for meals served through the Child Care Food Program (CCFP) continued to show the same nutritional shortfalls that they had in 1979, such that children often received insufficient amounts of iron, calories, Vitamin C, thiamin, niacin, and calcium; but the overall sensory appeal of the menus had improved, relative to those studied in 1979. Finally, surveys done in 1985 led the NET program staff to increase the proportion of their efforts directed specifically to participants in the National School Lunch Program (NSLP). As a result of considering these findings collectively, two parallel series of NET workshops were offered to CCFP and NSLP participants, respectively, over the last year. The content centered on menu planning and related/prerequisite skills. These workshops--Kitchen Math and Food Purchasing, Menu Planning and Kitchen Economy, and Advanced Menu Planning--are the focus of the current evaluation.

PURPOSE

This study was conducted in partial response to the third evaluation question identified in the 1989 NET evaluation plan. That question reads, "How well did each of the following workshops perform in helping Child Nutrition Program (CNP) participants master nutrition education learning objectives: Kitchen Math and Food Purchasing, Menu Planning, Advanced Menu Planning, and Meal Pattern Requirements for Day Home Sponsors (planned to be a series of three workshop sessions)?" Because the workshop series for day home sponsors is still in progress, this report is limited to discussing the first three workshops identified in the question.

PROCEDURES

In order to examine the effectiveness of these workshops in improving participants' knowledge, attitudes, and behaviors, several measures were taken. Tests and questionnaires administered before and after each workshop provided data on participants' mastery of the learning objectives. A standard training evaluation form was administered at the close of each workshop to assess participant satisfaction with the training. Actual menu records were sampled from workshop participants, as well as randomly selected nonparticipants, for blocks of time before and after the workshops in order to examine menu planning behaviors. Changes in knowledge, attitudes, and behaviors were evaluated using repeated measures analysis of variance. Analysis of covariance also was applied to the behavioral data. Criterion references were used to evaluate participants' learning and satisfaction.

RESULTS

Participants showed statistically significant improvement in knowledge test and attitude scale scores and indicated high levels of satisfaction with the workshops. On average, more than 68 percent of NET program participants exceeded preset criteria for acceptable performance on the tests and scales administered after the workshops (the range was from a low of 15.2 percent to a high of 98.2 percent). There were, however, individual items on the tests that posed problems for the participants. Additionally, attending the full workshop series (versus just one or two workshops in the series) was not associated with substantially greater improvement in the two domains of knowledge and attitudes. Behavioral data failed to reveal changes in anticipated/desired directions: children consuming standard portions of foods recorded on forms 1530 would be unlikely to obtain sufficient calories, iron, thiamin, or niacin, and too many calories were from fat rather than carbohydrates, regardless of whether or not center staff had participated in the NET workshop series. In addition, data about compliance with CCFP meal pattern requirements revealed pre-existing differences between the treatment and comparison groups that favored the treatment group: they were more likely to serve all required components of a meal, to serve only reimbursable foods, to fully describe foods on the menu records, and to serve adequate amounts of foods for the

number of children present each day. Analysis of covariance, using pre-workshop scores as covariates for examining later differences, showed a significant difference in overall meal pattern scores favoring the treatment group, particularly just after having attended the workshop series.

CONCLUSIONS

Training continues to appear to be a cost-effective mechanism for improving child-nutrition-related attitudes and knowledge, regardless of the particular CNP personnel involved in training. These improvements were sufficient to promote limited behavioral change, in terms of temporarily improved menu planning on the part of CCFP participants. However, on average, children consuming only standardized portions of the meals recorded on Forms 1530 would be unlikely to obtain adequate nutrition for overall health and well-being.

BACKGROUND

Conducting nutrition education workshops to prevent disease and enhance the well-being of Texas children is a major activity of this state's Nutrition Education and Training (NET) Program. The NET program is designed to support and enhance the effects of several reimbursement programs administered by the United States Department of Agriculture (USDA); all of these are organized under the umbrella of USDA's Child Nutrition Programs (CNP). By providing information and resources to instruct teachers, child care providers, and food service personnel in the fundamentals of nutrition, as well as how to convey this information so as to motivate children to make healthy food choices, the NET program indirectly helps children accept the nutritious meals and snacks served in school cafeterias and child care settings. The expected long-range outcomes are improved nutritional status for children and, coincidentally, reduced food waste in school and child care food service programs.

Among the requirements for receiving NET funds from USDA is the stipulation that program effectiveness be evaluated, with results of such evaluations being used to direct program improvement efforts. The Texas NET program traditionally has patterned its

annual evaluations after USDA's KABINS model, that holds that changes in knowledge (K) will lead to changes in attitudes (A), in turn facilitating changes in behaviors (B) that will lead to the improved nutritional status (INS) of children.

Three sets of findings, from past evaluations using the KABINS model, have provided direction to NET efforts for federal fiscal year (FFY) 1989. First are the findings stemming from evaluations completed over the past four consecutive years that generally indicate that workshops provided by the NET program are highly effective in improving participant knowledge and attitudes in nutrition education. Second is the set of 1986 findings detailing the strengths and weaknesses of selected Child Care Food Program (CCFP) menus: while the overall sensory appeal of the meals recorded on the forms had improved relative to menus sampled in 1979, children consuming those meals were still unlikely to have received sufficient amounts of iron, calories, Vitamin C, thiamine, niacin, and calcium. The third pertinent set of findings resulted from needs assessment surveys conducted in 1985, such that NET program staff became aware of the need to focus greater effort upon National School Lunch Program (NSLP) participants--children, teachers, and food service workers--in both public and private schools.

By considering these findings collectively, the NET program staff was able to formulate several decisions regarding program improvement. Clearly, training was to continue to be a prime vehicle for delivering nutrition education information. To better coordinate its efforts with the Texas Education Agency (TEA), and better reach those in the schools, two workshops were submitted for TEA approval for advanced academic training (AAT) credit (teachers must earn AAT credits to maintain their certification to teach). The workshops became available for AAT credit in FFY 1987. Two more workshops are scheduled to be submitted for TEA approval for AAT credit in the coming biennium.

A second course of action involved developing and delivering training focused specifically on menu planning and related/prerequisite skills, in an effort to improve the nutrition provided to children through child care centers and schools. Because single workshops had proven relatively ineffective in improving menu planning behaviors, despite their effectiveness in improving knowledge and attitudes, it was felt that a more

intensive and/or "massed practice" approach to intervening might be more successful in changing actual menu planning behaviors. Consequently, two parallel workshop series were offered to CCFP and NSLP participants, respectively. Each series consisted of three workshops that had been presented alone in the past: Kitchen Math and Food Purchasing, Menu Planning and Kitchen Economy, and Advanced Menu Planning. All three workshops are being examined in the current evaluation.

These workshops, like other NET program workshops, are conducted free of charge by registered dietitians in the participants' own communities. Exercises at the close of each section of the workshop curriculum provide feedback to participants about their mastery of specific learning objectives. Many of the exercises involve group problem-solving. Frequent use is made of audio-visual aids. These features of the instructional process are intended to help communicate objectives more effectively, and to keep participants attentive and motivated to master the learning objectives.

PURPOSE

This study was conducted in partial response to the third evaluation question in the 1989 NET evaluation plan--"How well did each of the following workshops perform in helping CNP participants master nutrition education learning objectives: Kitchen Math and Food Purchasing, Menu Planning, Advanced Menu Planning, and Meal Pattern Requirements for Day Home Sponsors?" Because the workshop series for day home sponsors is still in progress, this report is limited to discussing the first three workshops identified in the question.

Several more specific questions can be identified within this broad evaluation question. They are:

* After the workshops, did participants know more than they did before about child-nutrition-related concepts?

* Did participants have more positive attitudes about nutrition education after the workshops than they did before?

* Were participants satisfied with the training they received in the workshops?

* What were the relative strengths and weaknesses of workshop performance?

* Were participants able to apply the knowledge acquired in the NET workshop series to their own work, as shown by daily menu records?

USE OF LEARNING OBJECTIVES

With regard to changes in participant knowledge, each workshop in the series is designed to meet several specific learning objectives. Each workshop can be considered successful if, after the respective session, participants are able to accomplish each of the following objectives.

Kitchen Math and Food Purchasing

* Use calculators correctly to complete workshop exercises.

* Calculate basic math problems, involving fractions and decimals, with 70 percent accuracy.

* Calculate equivalent units of measure from provided charts with 70 percent accuracy.

* Solve proportion problems for a missing value with 70 percent accuracy.

* Determine quantities of food to purchase for specific menu items with 70 percent accuracy.

* Calculate recipe ingredients/quantities for fewer than 100 servings and more than 100 servings with 70 percent accuracy.

Menu Planning and Kitchen Economy

* Recognize leader nutrients and identify the food group of a given list of foods.

* Complete a checklist, provided by the workshop trainer, for evaluating menus.

* Evaluate a given menu with the checklist and make necessary changes in that menu.

* Improve menus to better meet the nutritional needs of children or improve the sensory appeal of the combination of foods served.

* Develop a menu which meets all of the checklist requirements.

* Evaluate menus to make changes which reduce cost without reducing the meal's nutritional value or sensory appeal.

* Share/develop ideas for menus or recipes for meat alternates and/or inexpensive cuts of meat.

Advanced Menu Planning

* Distinguish between reimbursable and non-reimbursable food and beverage items.

* Plan sample menus that comply with USDA's Child Nutrition Program meal pattern regulations.

* Use the Food Buying Guide to complete menus properly, including corrections for missing components, proper quantities of food, and so forth.

* Correctly complete daily menu records such as (for CCFP participants) DHS form 1530.

Data describing changes in participants' knowledge and attitudes related to these concepts are needed for three reasons. First, information about the extent to which the workshops are successful in communicating child-nutrition-related concepts to NET's target

population is needed to help document program impact. In addition to being required by USDA, this helps to reinforce NET's accountability to the public for the way federal funds are being spent. Second, such information helps to identify areas where changes can be made to improve the workshop curricula. By identifying areas where participants have or have not achieved mastery, both before and after the workshops, this study can inform workshop trainers how to best allocate available learning time. The curriculum developer also can use the information to decide how the curricula can be revised to make them more effective. Third and finally, data about performance of these workshops are required to help make decisions about content and format of training still needed, in general, to enhance children's opportunities to learn about, and to practice, healthy eating habits.

PROCEDURES

PARTICIPANTS

There were 425 participants in the Kitchen Math workshops, and CCFP and NSLP participants were intermingled in such a fashion as to prevent their performance from being considered separately. Nearly all of the participants (N=401) completed the training evaluation form used to measure satisfaction with the workshop. Out of the 100 mailed, 60 attitude questionnaires and 69 out of 100 follow-up knowledge tests were returned to the NET program evaluator. Forty-seven of the follow-up tests were successfully matched to pre- and posttest records.

There were 397 participants in the Menu Planning and Kitchen Economy workshops; 308 of them were in the CCFP (workshops held in July 1988) and 89 of them were in the NSLP (workshops held in October 1988). Two hundred seventy attendees completed the standard training evaluation form used to index satisfaction. One hundred follow-up knowledge tests and 100 attitude questionnaires were mailed to samples of CCFP workshop participants. Forty-six of them returned completed attitude questionnaires, while 39 returned follow-up knowledge tests to the NET evaluator. Out of these, 26 tests could be matched to pre- and posttest records. The full sample of NSLP workshop participants was included in the follow-up assessments of both knowledge and attitudes (to do otherwise might have jeopardized the validity of the study by not

having obtained sufficient matched sets of pre/post/follow-up data); 42 of them returned the knowledge tests and 48 returned attitude questionnaires. Thirty-three of the knowledge tests were matched to pre- and posttest records.

The Advanced Menu Planning workshops were delivered to 304 participants, of whom 235 were in the CCFP (workshops held in August 1988) and 69 were in the NSLP (workshops held in November 1988). The standard training evaluation form was completed by 286 workshop participants. Again, 100 follow-up knowledge tests and 100 attitude questionnaires were mailed to samples of CCFP workshop participants. The NET evaluator received 55 completed knowledge tests from this group, and 41 completed attitude questionnaires. Forty-three of the completed follow-up knowledge tests could be matched to pre- and posttest records. As with the Menu Planning workshops, the entire sample of NSLP workshop participants was included in the follow-up assessments of knowledge and attitudes. Thirty-three of them returned both the knowledge tests and the attitude questionnaires. Twenty-six of the NSLP Advanced Menu Planning knowledge tests were matched to pre- and posttest records.

Twenty-six child care centers were identified as having been represented at the full CCFP workshop series. All were contacted in November 1988 with a letter requesting copies of their menu records (DHS form 1530) for three blocks of time: May 9-20, September 12-23, and November 7-18, 1988. Twenty-two centers responded with the correct information. Simultaneously, a random sample of 23 child care centers whose staff had not attended any of the workshops were contacted with a letter requesting their participation. Because of a poor response rate, an additional 11 centers were invited to participate; this effort yielded a total of 25 comparison-group centers. Of the total number of menu records received, 401 matched sets (pre-workshop, post-workshop, and follow-up) of data were used in the analysis of compliance with CCFP meal pattern requirements (some centers were closed for one or more days during the three time blocks). Data from all 47 centers were used to analyze the nutritional value of meals served to children.

INSTRUMENTATION

A total of eight instruments was used to collect data about knowledge (one test for each of the three workshops), attitudes (one questionnaire for each of the three workshops), satisfaction (one standard form), and behavior (DHS form 1530, "Daily Menu Record"). These are presented in Appendix A. In addition, there were three forms of each of the three knowledge tests, although the only distinction between forms was in the order of presentation of test items.

Test and questionnaire items were adapted from standardized nutrition knowledge and attitude tests and supplemented with items written by the Texas NET program staff. The reading level for each instrument was ascertained using Fry's method. Items and instructions were adjusted as necessary to ensure that each instrument's reading level did not go above approximately the ninth grade level.

Knowledge Tests

Each knowledge test was comprised of a minimum of 15 multiple-choice items keyed to specific learning objectives of the workshops. Each item consisted of a stem followed by five possible answers; participants were instructed to select the one best response alternative. Statistical properties of the knowledge tests were unknown at the time of administration, as no pilot testing with the instruments could be completed. However, to protect content validity, each item was located in a content specification table for the given workshop, providing a visual picture of representativeness of test items. (Content specifications tables are portrayed in a matrix. Across the top, the various domains--e.g., knowledge and attitudes--are displayed. Going down the page is a detailed list of learning objectives. Check marks are placed at each point of intersection in the matrix where a test item, specific to the content and domain, has been generated.)

Attitude Scales

The attitude questionnaires consisted of a minimum of 12 Likert-type items, using a five-point response scale ranging from "strongly disagree" to "strongly agree." Respondents were asked to complete the items twice; on the first page, they were to indicate how they felt about each item after the workshop; on the second page, they were to indicate how they felt before the workshop. This technique is known as retrospective pretesting, and it is most commonly used with regard to training/learning situations. Retrospective pretesting saves workshop time for teaching and learning, and helps assure that participants have the same frame of reference for reporting their attitudes before and after the workshop. To protect against positive response bias and/or carelessness, some of the items on each attitude questionnaire were worded negatively, such that strongly disagreeing with the item was reflective of a more favorable attitude. These items were scored in reverse direction, so that higher scores could uniformly be interpreted as signifying more favorable attitudes. As with the knowledge tests, statistical properties of the attitude questionnaires were unknown prior to data collection; but representativeness of the items was checked through the use of a content specification table for each workshop.

Training Evaluation Form

The instrument employed to assess participant satisfaction with training was a standard, five-item form used by the Texas Department of Human Services (DHS form 4316) to evaluate in-house staff development sessions. Each item requires participants to rate perceived quality of some aspect of training on a four-point Likert-type response scale, ranging from "not at all" to "very well." In addition, the program evaluator assigned a rating to the comments each participant wrote on his/her form, as to how favorable the comments were. The scale used by the evaluator was a five-point Likert-type scale, with values ranging from zero ("strongly negative comments") to four ("strongly positive comments"); the scale mid-point of two was assigned whenever no comments were written by a participant.

Menu Records

Behavioral data were collected with a menu record form which CCFP contractors are required to maintain for DHS (form 1530), entitled "Daily Menu Record." The form provides space for recording the menus for each meal on a given day, as well as for the quantities of each food served at the meals, the number of children present at each meal by age group, and so on. Menu records were coded by a DHS contractor on whether the forms were filled out completely, whether the quantities of foods served were sufficient for the numbers and ages of children indicated, whether all required meal components were included, whether foods served were reimbursable, and whether the meals were of adequate nutritional value. These data were supplied by the contractor to the NET program evaluator as hard copies of nutrient analyses, and on a floppy diskette containing a dBase III file with meal pattern compliance scores. Additionally, a WordPerfect file on a second floppy diskette listed the most frequently served foods at each participating center.

DESIGN AND DATA COLLECTION

USDA's KABINS model emphasizes outcomes in terms of knowledge, attitudes, and behaviors. In addition, approaches to adult education and instructional systems design emphasize the importance of participant satisfaction in successful learning experiences. Therefore this study included measures of all four types of outcomes: knowledge, attitudes, behaviors, and satisfaction. The following sections describe the evaluation design and data collection procedures used in each domain.

Knowledge

The design used to assess changes in participant knowledge was quasi-experimental (treatment group only) and included repeated measures (pre-, post-, and follow-up tests). The data were examined with inferential statistics, by completing repeated measures analyses of variance, and with criterion references by determining the percentage of participants mastering preset criteria. NET program staff had decided, at the time of plan development, that knowledge test performance of 70 percent correct

responses would be considered "acceptable," and 90 percent correct responses would be "ideal." The remainder of this section describes the process of data collection for NET's evaluation of workshop effectiveness in the knowledge domain.

Workshop trainers administered pre- and posttests of knowledge at the start and conclusion of each session. The three forms of the test were used in round robin fashion by each trainer. That is, at the first workshop session conducted by any given trainer, form 1 of the knowledge test served as the pretest and form 2 served as the posttest; at the next session, form 3 served as the pretest and form 1 was the posttest; next, form 2 was the pretest and form 3 was the posttest; and then the cycle was repeated until all sessions of a workshop were completed. In this manner, changes from pretest to posttest, averaged across sessions, could not be presumed to reflect systematic differences across forms of the knowledge test (e.g., reactivity, test-specific memory, variations in item difficulty as a function of location, etc.). All three forms of the knowledge test were used in any given follow-up, as well, with approximately one-third of the follow-up sample receiving any given form of the test.

For the workshops provided to CCFP participants (June, July, and August), follow-up knowledge tests and attitude questionnaires were mailed to independent samples of participants approximately three months after the last workshop. Two samples of 100 participants were selected according to the last digit in their Social Security Numbers (SSNs). Knowledge tests were mailed to those with SSNs ending in odd numbers. The first 34 participants in the sample were given form 1, the next 33 were given form 2, and the remainder were given form 3 of the test.

In the case of workshops provided to NSLP participants (June, October, and November), the relatively small total number of participants made it advisable to send follow-up knowledge tests and attitude questionnaires to all participants. As above, about one-third of the group received any given form of the knowledge test; however, the manner of distributing the forms was altered, so as to prevent having all participants in a given setting receive the same form of the test. Paralleling the procedures used with the CCFP group, follow-up data were collected approximately three months after the last workshop.

Attitudes

A quasi-experimental (treatment group only) design with repeated measures was used in evaluating changes in participants' attitudes. In this instance, data collection was completed at one point in time, and the repeated measures derived from the technique of retrospective pretesting (see the Instrumentation section on p. 13 for more information about this technique). A repeated measures analysis of variance was used to statistically evaluate changes in attitudes over time. Criterion references were used to evaluate improvement in attitudes, as well: a priori, an average rating of 4.0 on the items was considered to be an "acceptable" outcome, and an average rating of 4.5 was considered "ideal" by the NET program staff. The percentage of participants making such ratings before and after the workshop was compared to determine if changes had occurred.

The sample of CCFP participants selected to receive the attitude assessment was drawn at the same time as the sample selected to receive the knowledge test; however, participants whose SSNs ended in even numbers were given the attitude scale. All NSLP participants were asked to complete the attitude scale, due to the relatively small number they constituted. The attitude scale was sent to both CCFP and NSLP participants approximately three months after the conclusion of their respective workshop series.

Satisfaction

A "one-shot," posttest-only design was used in the assessment of participant satisfaction with the NET program's workshops. Participants completed the training evaluation form (DHS form 4316) at the end of each workshop session. Descriptive statistics and criterion references were used to judge the success of the workshops. The Net program staff had predetermined that average ratings of 3.0 on the items would be considered "acceptable," and average ratings of 3.5 would be considered "ideal." The percentage of respondents making such ratings was examined.

Behaviors

The design used to assess behavioral change was the most rigorous employed in this evaluation study. Although technically not a true experimental design, a randomly selected comparison group was

included in this repeated measures study. Change was examined within the two groups of child care centers, over time (pre-intervention, post-intervention, and three months after intervention), and in relation to each other's performance. The statistical technique used to analyze changes in menu planning behaviors was initially a repeated measures, between-within analysis of variance (MANOVA) on each of two sets of data. An analysis of covariance later was applied to one set of data (the meal pattern scores, described below). Finally, frequency counts were made of all foods served three or more times in any given two-week block of menu records.

The first set of data analyzed with repeated measures, between-within MANOVA was derived from an analysis of the nutritional value of all foods reported to be served for breakfast, lunch, and snacks each day at each center. The nutrient analysis was performed at the University of Texas under DHS contract. The observed pre-workshop, post-workshop, and follow-up average percentages of USDA's recommended daily dietary allowances (RDAs) for each of nine critical nutrients, for kilocalories, and for the percentages of calories from fat or from carbohydrates were provided on a series of printouts. These 36 figures for each center in the study were entered into the Unisys mainframe at DHS and were converted into utility scores to reflect the fact that these meals could only be assumed to provide about two-thirds of a child's daily food intake. That is, rather than examining them on a scale of 0-100 percent RDA, the utility scores for the nine nutrients reflected a maximum of 66.67 percent RDA as "complete" nutrition. In the case of percentage of calories from fat, the utility score reflected a maximum of 30 percent as ideal; utility scores for the percentages of calories from carbohydrates reflected a target value of 58 percent.

The second set of data analyzed with MANOVA reflected the quality of study participants' daily menu records. They were scored by the DHS contractor to reflect whether each required (under CCFP regulations) component for lunch was present (up to 4 points, 1 for each component), whether foods served for each component were reimbursable (up to 4 points), whether the foods were described completely--that is, both the nature and quantity of food items were specified (e.g., "16 oz. ground chuck" versus "meatloaf," for up to 8 points, divided by a value of 2 so that each of the four scores would be on a scale of 0-4), and whether or not the amounts

listed for each component could have yielded sufficient standard portions to feed the number of children in each age group on that day (up to 4 points). For each center and for each day, these four scores were summed to yield an overall meal pattern score; the maximum compliance score was 16.

A listing of the most frequently recorded foods on forms 1530 was prepared by the UT contractor. Each time a center served a food three or more times in a given block (pre-intervention, post-intervention, 3 months after intervention), it was added to the list. The WordPerfect document that resulted from this effort was loaded into Lotus at DHS, and tallies of these were made across all centers to yield a one-page list of most-often-served foods by food type (e.g., fruits, vegetables, bread/grain, etc.)

RESULTS

The NET program workshop series appears to be highly effective (see the chart on the next page): the majority of participants reported being very satisfied with the training, statistically significant improvements in knowledge test and attitude scale scores were observed, and some improvements were noted in the quality of menu records kept by those attending workshops, relative to those who had not attended any. A detailed description of the findings, by domain, follows.

KNOWLEDGE

Two types of findings will be reported for the three workshops in this series. First, results pertaining to each workshop's knowledge test, per se, will be described. Second, results indicative of participant performance on the respective tests will be conveyed.

SUMMARY OF RESULTS IN FOUR DOMAINS PORTRAYING EFFECTIVENESS OF THE NET PROGRAM'S WORKSHOP SERIES

Data Source	Workshop in the Series: Kitchen Math	Menu Planning	Advanced Menu Planning	
Knowledge Tests (pre-, post-, follow-up)				
Both groups	+**	+		+
CCFP only	n/a	+	+	
NSLP only	n/a	-**	+	
Attitude tests (retro pre-, post-)				
Both groups	+	+		+
CCFP only	n/a	-**	+	
NSLP only	n/a	+	+	
Form 4316 "Satisfaction" (one shot, posttest)***				
Both groups	+	+		+
CCFP only	n/a	+	+	
NSLP only	n/a	+	+	
Behavior: Menu records (pre-, post-, follow-up)+	Nutrient Analysis	Meal Pattern Scores		
CCFP group	-	+		
Comparison (no workshops)	-	-		

*Indicates a statistically significant, positive change in performance.

**Indicates a result which was not statistically significant (e.g., $p > .05$).

***The cells for this section show only criterion-referenced results. All the previous cells reflect tests of statistical inference, although criterion-referenced information is reported for them as well.

+These data were collected before and after the workshop series was completed.

Kitchen Math and Food Purchasing: Findings about the Test

The Kitchen Math and Food Purchasing knowledge test data revealed that item #2, which asked participants to identify the best definition of a proportion, did not correlate (r = .05) with the responses participants gave to other items on the test. Because deleting the item improved the test's internal consistency, as measured by Cronbach's alpha (α = .72 after deletion), item #2 was removed from all subsequent analyses and the maximum possible raw score on the test equalled 14 correct.

An examination of the data for possible language/culture bias indicated that the Kitchen Math knowledge test was of satisfactory internal consistency (α = .83) for sessions in which more than 50 percent of the respondents were Hispanic, as well as those in which fewer than 20 percent were Hispanic (α = .70). Also, a review of mean pretest, posttest, and follow-up test scores for these two subpopulations failed to show any differences indicative of language/culture bias adversely influencing performance.

Kitchen Math and Food Purchasing: Performance on the Knowledge Test

Group performance of the participants on the Kitchen Math and Food Purchasing test was found to improve significantly over time (F = 25.438; df = 2, 92; $p < .001$). Table 1 in Appendix B summarizes the results of the analysis of variance. In addition, the percentages of participants meeting the criterion for acceptable performance--a raw score of 11 or higher--steadily improved from pretest (about 19 percent) to posttest (approximately 72 percent) to follow-up test (81 percent). Furthermore, the percentages of participants mastering the criterion for ideal performance, a raw score of 13 or more correct, increased from zero at the pretest, to about 13 percent on the posttest, to nearly 43 percent on the follow-up test (see figure 1 in Appendix B).

Group performance was examined item by item to diagnose workshop strengths and weaknesses. At the time of the pretest, only one Kitchen Math knowledge test item had 20 percent or fewer respondents selecting the correct alternative (as many as would be expected by chance alone). This was item #5, which asked participants to identify three bits of information needed before they could compute how much food to prepare for a meal. By the

posttest, selection of the correct response rose above chance to about 32 percent; and by the follow-up, participants performed acceptably on the item, with nearly 77 percent answering correctly. In contrast, items #10 and #12 were mastered by more than 70 percent of the participants before the workshop. These items involved understanding common fractions. Mastery of items #10 and #12 was maintained across all three administrations of the knowledge test. Finally, items #1, #4, #6, #9, and #15 were mastered by 70 percent or more of the respondents at the end of the workshop; and all items were mastered by 70 percent or more of the respondents on the follow-up test. Ideal performance was achieved with only one item on the follow-up test: item #9, which required correct identification of the sections of the Food Buying Guide printed by the United States Department of Agriculture. That may not seem important at first glance; but in fact it reflects one of the central objectives of the workshop series, to promote familiarity with, and use of, the guide.

Menu Planning and Kitchen Economy: Findings about the Test

The Menu Planning and Kitchen Economy knowledge test data were analyzed to determine the test's internal consistency. Coefficient alpha was computed on all pretest scores (α = .81), well as on pretest scores of only CCFP participants (α = .79) and only NSLP participants (α = .84). All indicate that the test was internally consistent. Item-total correlations showed that each item performed sufficiently well to be retained for further analysis.

A factor analysis (varimax method) was completed with the Menu Planning knowledge test, as had been done with the Kitchen Math knowledge test. The latter of the two tests was, for all practical purposes, considered to be comprised of a single factor (only one factor extracted by SPSS-X had an eigenvalue above 1.0). In contrast, two factors were identified by SPSS-X in the Menu Planning test. The first had an eigenvalue of about 5.14, and the second, about 1.57. All items except item #8, about characteristics of cycle menus, loaded on the first factor; items #5, #7, #9, and #15 loaded most heavily. All four items distinctly focus upon nutrients and food consumption; as such, factor 1 could be termed "basic nutrition principles in menu

planning." The second factor, with strong loadings on items #3, #12, and #14, is best understood as "practical knowledge in kitchen economy and menu planning."

Attempts to assess possible culture/language bias in the Menu Planning test scores yielded results which might be cause for concern. When data for CCFP and NSLP participants were pooled, the internal consistency of the test, for selected workshops with either greater than 50 percent or fewer than 20 percent Hispanic participants, remained high (α = .81 and .88, respectively). Attempts to disaggregate these data by CNP program failed, however; the value of alpha was reduced too severely for the results to be interpretable. When the pooled data on the selected workshops were reviewed in relation to those for the total group, it appeared that culture/language bias might have been a problem with the Menu Planning test. However, the reduced N, which resulted from using only a few workshops in this analysis, also could be responsible for the somewhat unusual appearance of the results (see table 2 in Appendix B).

Menu Planning and Kitchen Economy: Performance on the Knowledge Test

Group performance on the Menu Planning knowledge test yields a picture of moderate success. That is, when data for CCFP and NSLP participants were pooled (N=59), mean scores were observed to significantly increase from pretest (4.88) to posttest (5.15) and on to the follow-up test (7.05), as shown by a repeated measures analysis of variance ($F = 4.33$; $df = 2,116$; $p < .05$). Table 3 in Appendix B presents the summary of this ANOVA.

When data for CCFP and NSLP participants were examined separately, the results were mixed. NSLP participants' average test scores (N=33) apparently dropped from pretest (5.48) to posttest (4.55), and then appeared to peak on the follow-up test (6.30). However, results of the repeated measures analysis of variance showed no significant differences in the test scores. In contrast, CCFP participants' average test scores (N=26) showed steady improvement from pretest (4.12) to posttest (5.92) and on to the follow-up test (8.00). This was borne out in the repeated measures analysis of variance, as well ($F = 4.2486$; $df = 2, 50$; $p < .05$). Results of the ANOVA are shown in table 4 of Appendix B.

Patterns of group mastery were examined in relation to the performance criteria set by NET program staff. Here, too, one can see the pattern of limited success evidenced by the ANOVAs. The criterion for acceptable performance was 70 percent correct, or a raw score of 11 or more correct answers. Ideal performance was represented by 90 percent correct, or a raw score of 14 or more correct answers. When the percentage of all participants achieving the criterion for acceptable performance is studied, performance was observed to improve over time: 9.9 percent met the criterion at pretest, 15.2 percent met it at posttest, and 32.1 percent met it three months later on the follow-up test. Steady increases were evident for all participants in relation to the criterion for ideal performance, or mastery, as well: 2.1 percent knew the content before the workshop, 3.4 mastered it on the posttest, and 14.8 percent demonstrated mastery on the follow-up test (see figure 2 in Appendix B). When the two subgroups were considered separately, the pattern of steady progress holds for the CCFP participants but not for the NSLP participants. For the CCFP group, none met the criterion for acceptable performance on the pretest; 30.8 percent met it on the posttest; and 38.5 met it on the follow-up test. Similarly, increasing percentages of CCFP participants met the criterion for mastery or ideal performance: none at pretest, 3.8 percent at posttest, and 23.1 percent at the time of follow-up (see figure 3 in Appendix B). The NSLP group's performance in relation to both criteria showed a pattern which corresponded to their average raw scores, as reported earlier in this section: the percentage performing acceptably on the Menu Planning test went from 15.2 at pretest, to 9.1 at posttest, and rose to 21.2 by the follow-up test. Similarly, the percentages of NSLP respondents mastering the test shifted from 3.0 at pretest to zero at posttest, rising by the follow-up test to 9.1 percent (see figure 4 in Appendix B).

When item-level data were examined, additional insight was gained into the relative strengths and weaknesses of the workshop, though test difficulty was apparently an issue. The percentages of all respondents selecting correct responses was below chance (less than 20 percent) on four pretest items: items #2, #4, #9, and #11; and borderline on pretest item #10. At posttest, performance was still below chance on items #2 and #4 and was still borderline on item #10. By the follow-up test, all respondents were performing above chance on all of the items; yet in no case was any one item mastered by 70 percent or more of all respondents.

In fact, from pretest to posttest, **fewer** people selected correct responses on about half of the test items (7 out of 15). From posttest to follow-up, performance on every item improved.

The apparent decline in criterion-referenced performance by NSLP participants is also evident in the item-level data. At pretest, three of the same items noted above were responded to correctly less often than one would expect by chance alone (#2, #4, and #11); but at posttest seven test items fell into this category: #2, #4, #7, #9, #10, #11, and #15. In fact, NSLP participants gave incorrect responses more often on 13 of the 15 posttest items, and did better only on items #1 and #13. However, only one item, #2, continued to be answered incorrectly more often than expected by chance alone on the follow-up test. The NSLP group's performance, from posttest to follow-up test, improved on the remaining 14 items. An acceptable level of mastery was achieved on item #1, which was answered correctly by 71.4 of the NSLP respondents on the follow-up test.

The item-level performance of CCFP respondents showed a much smoother pattern of improvement. At pretest, they were performing below chance on five items: #2, #4, #9, #10, and #11. The percentages of CCFP respondents answering correctly increased from pretest to posttest on 11 out of 15 items, but performance remained below chance for items #2 and #4. From posttest to follow-up, the percentage of CCFP respondents answering correctly increased on every item, such that performance was better than chance on all items, and performance on item #3 surpassed criterion (71.8 percent answered correctly).

Advanced Menu Planning: Findings about the Test

Results from the Advanced Menu Planning knowledge test presented a much more solid appearance of success than did those from the Menu Planning and Kitchen Economy knowledge test. Reliability of the test was assessed in terms of internal consistency; Cronbach's alpha was considered acceptable when data were pooled across the NSLP and CCFP groups (α = .76), as well as when considered separately (α = .64 for NSLP respondents and α = .78) for CCFP respondents). Item-total correlations indicated that all 17 items on the test were performing satisfactorily, so data from all 17 were used in subsequent analyses.

A factor analysis of the Advanced Menu Planning knowledge test was completed. As on the Kitchen Math data, SPSS-X was able to extract more than one factor. However, only one factor had an eigenvalue above 1.0, accounting for 22 percent of the variance in the test scores. As such, the test was considered to be unidimensional, for all practical purposes, in spite of the fact that the majority of the variance reflects other factors which may be independent of the test itself.

The check for language/culture bias in the Advanced Menu Planning test showed that its internal consistency was satisfactory for all subgroups. In addition, a review of the mean pretest, posttest, and follow-up test scores for selected workshops, with either more than 50 percent Hispanic participants or fewer than 20 percent Hispanic participants, gave no indication of adverse effects of culture/language bias.

Advanced Menu Planning: Performance on the Knowledge Test

Group performance on the Advanced Menu Planning knowledge test seemed to indicate that the last workshop was the most successful in the series. When data were pooled across NSLP and CCFP participants, average scores on the test were observed to increase steadily from pretest (11.5) to posttest (13.2) to the follow-up test (14.1). The repeated measures analysis of variance indicated that the changes which occurred over time were highly significant ($F = 26.0085$; $df = 2, 136$; $p < .001$; see table 5 in Appendix B). When the subgroups were examined separately, nearly parallel improvements were found to occur within each over time (see figure 5 in Appendix B). For instance, those in the NSLP began with an average pretest score of about 11.4, and obtained an average posttest score of about 13.2; their average follow-up test score equaled 13.8. The repeated measures ANOVA for this group was statistically significant ($F = 6.9404$; $df = 2, 50$; $p < .01$). Similarly, the CCFP group obtained average pretest scores of about 10.4 correct, average posttest scores of about 12.9, and average follow-up test scores of about 14.2. As expected, the repeated measures analysis of variance completed with CCFP scores also was statistically significant ($F = 21.0578$; $df = 2, 84$; $p < .001$). Tables #6 and #7 in Appendix B display the summaries of the ANOVAs.

The criterion-referenced analysis of group performance on the Advanced Menu Planning knowledge test also showed the workshop to be effective. The criterion for acceptable performance was set at a raw score of 12 or more correct answers out of 17; ideal performance was represented by a raw score of 15 or more correct. Although many participants began with acceptable levels of performance (about 42 percent across the two groups), increases were evident in the number of participants achieving either criterion over time. This was almost always true within each group, as well; the only exception occurred in the NSLP group, where fewer participants achieved the criterion for acceptable performance on the follow-up test compared to the posttest. This decrease was slight, however, in relation to the increase which had occurred from pretest to posttest. These results are all portrayed in the histograms shown in figures 6, 7, and 8 in Appendix B.

Item-level data also showed the general pattern of improvement over time. In clear contrast to the Menu Planning knowledge test, participants demonstrated acceptable levels of mastery with more than one-third of the items on the Advanced Menu Planning pretest. By the follow-up test, participants in either group (CCFP/NSLP) had mastered the majority of items on the test. Only two items continued to pose problems for the participants: item #1, which inquired about serving cheese food, and item #9, which concerned the bread component in the Child Nutrition Programs. In the case of item #1, no one distractor was selected with marked frequency over any others; yet on the pretest, the correct item was selected less frequently than one would expect by chance alone (only about 12 percent of the participants chose the correct answer). By comparison, on item #9 participants were most often selecting one distractor which they recognized to be true; however, had they recognized that <u>all</u> of the distractors were true, they would have been able to identify the best answer ("All of the above"). Finally, when the item-level data were considered separately for each group, it became apparent that an additional item was troublesome for the NSLP group. That was item #2, which tested participants' understanding of the standards used by USDA in determining whether or not a meal is reimbursable. The NSLP participants were most often distracted by a response that

referred to the "basic four" food groups, which are in fact discrete from the meal patterns established by USDA (although the names of the meal pattern components directly parallel those of the basic four food groups).

In summary, the tests used to assess participant knowledge with regard to this workshop series were found to have generally satisfactory statistical properties. Performance was poorest on the Menu Planning knowledge test, and best on the Advanced Menu Planning knowledge test. However, all three tests revealed that improvements had been made in participants' knowledge over time, although certain items were never mastered by participants. In addition, when data were pooled across all three tests (scores on each were weighted to adjust for differences in the length of each test), no significant difference was found between the posttest scores of those who had attended all three workshops in the series, and the posttest scores of those who attended only one or two of the workshops. Thus, no cumulative effects of enhanced learning were observed to result from attending the full series.

ATTITUDES

As with the knowledge test data, statistical properties of the scales used to assess participant attitudes were unknown prior to their use. Thus, results about the instruments per se will be reported together with findings about the NET workshop participants' attitudes.

Attitudes about Kitchen Math and Food Purchasing

The Kitchen Math attitude scale consisted of 12 items, each rated twice by participants (once for their current reactions, and again for how they felt before the workshop). Internal consistency was used to index the instrument's reliability; this was found to be very high (α = .87 on the retrospective pretest; α = .82 on the posttest).

The maximum possible score on the Kitchen Math attitude test was 60; the mean pretest score was 47.1 and the mean posttest score was 50.1. A repeated measures analysis of variance (see the summary shown in table 8 of Appendix B), used to test for differences between pre- and posttest scores, was statistically significant (F = 26.2678; df = 1, 48; $p < .001$). In addition, the

percentages of participants making average ratings either above 4.0 ("acceptable") or above 4.5 ("ideal") increased from pretest to posttest. Before the workshop, 48.1 percent of the respondents gave acceptable ratings on the attitude scale; after, 77.4 percent did. Similarly, only 14.8 percent of the respondents gave ideal ratings before the workshop, whereas 22.6 percent did afterwards (see figure 9 in Appendix B).

Item-level data on the Kitchen Math attitude scale show that several pretest items received average ratings below 4.0 from the respondents: #1, 7, 8, 9, 10, 11, and 12. When the same items were rated to reflect how participants felt after the workshop, only three continued to receive mean ratings below 4.0 (#8, 10, and 12). Thus, the Kitchen Math and Food Purchasing workshop appears to have favorably affected the child-nutrition-related attitudes of the persons who attended it, although some areas could be improved.

Attitudes About Menu Planning And Kitchen Economy

The Menu Planning attitude test data show a similar overall pattern, although differences emerged when group data (NSLP or CCFP) were examined separately. The 13-item scales had acceptable reliability: $\alpha = .72$ on the pretest, but $\alpha = .63$ on the posttest. The lower value of coefficient alpha on the posttest is to be expected when a ceiling effect occurs, and this is typical with many attitude measures.

The maximum possible score on the Menu Planning attitude test was 65. Across all participants, the mean pretest score was 45.8 and the mean posttest score was 49.3. These scores were found to be significantly different, as summarized in table 9 in Appendix B ($F = 34.3539$; $df = 1, 83$; $p < .001$).

The criterion-referenced analysis also showed evidence of the Menu Planning workshop's effectiveness. Before the workshop, 19.3 percent of the respondents gave "acceptable" ratings to the items (average item ratings equal to 4.0 or higher); after, 32.6 percent did. In like manner, while only 2.3 percent of the respondents gave "ideal" ratings before the workshop (average item ratings at 4.5 or above), 3.4 percent of them did afterwards. (See figure 10 in Appendix B.)

Item-level data show that before the workshop, average ratings were below 4.0 for items #3, 4, 5, 7, 8, 10, and 12. After the workshop, mean ratings were still below 4.0 for items #4, 7, 10, and 12, indicating some room for improvement in the topics addressed by these items. In general, though, this workshop appeared to be effective in improving the relevant attitudes of participants, when data for CCFP and NSLP groups were pooled.

Mixed results were evident when the data for the two groups were considered separately. Coefficient alpha for the NSLP group at pretest equalled .74, whereas for the CCFP group it was reduced to .68, in spite of the fact that the latter group was substantially larger. At posttest, coefficient alpha was similar across the two groups (.63 and .62, respectively).

In contrast to the findings pertaining to the knowledge tests used for the Menu Planning workshop, the NSLP group reported greater attitude change than did the CCFP group. Before the workshop, NSLP respondents' average score was about 45, and CCFP respondents average score was about 46.6; by the time of the posttest, some three months after the last workshop, NSLP respondents' average score was higher than that for the CCFP group (about 50 and about 48.4, respectively). The repeated measures ANOVAs for the data from each group confirm the appearance that more change took place in the attitude ratings made by the NSLP participants: the results were strongly statistically significant for the NSLP group ($F = 47.5888$; $df = 1, 44$; $p < .001$), and only marginally significant for the CCFP group ($F = 3.5154$; $df = 1, 38$; $p < .10$). These ANOVAs are summarized in tables 10 and 11.

Attitudes About Advanced Menu Planning

As with the Advanced Menu Planning knowledge test data, both the general pattern and the patterns for the CCFP and NSLP groups reflect the workshop's effectiveness in promoting favorable attitudes about child nutrition programs. In this case, the Advanced Menu Planning attitude scale possessed adequate reliability, as indexed by internal consistency, on both the retrospective pretest and the posttest ($\alpha = .83$ and .79, respectively). Within the two groups, alpha remained high: .83 on the pretest and .79 on the posttest for the CCFP group, and .85 on the pretest and .83 on the posttest for the NSLP group.

The maximum possible score on the Advanced Menu Planning attitude scale was 60. The average pretest score obtained by all respondents was about 47.7, and the average posttest score was about 50.5. For the CCFP group, the mean pretest score equalled approximately 47.8, and the mean posttest score was approximately 49.9. In comparison, the NSLP group average pretest score was about 47.5, but the average posttest score was 51.3. Whether the groups were examined separately or together, repeated measures analyses of variance indicated that participants were found to have made statistically significant improvements in the responses they gave to the attitude scales (all: $F = 22.2291$; $df = 1, 71$; $p < .001$; CCFP: $F = 8.3578$; $df = 1, 38$; $p < .01$; NSLP: $F = 14.1870$; $df = 1, 32$; $p < .001$). The results of these analyses are shown in tables 12 through 14 in Appendix B.

Criterion-referenced analyses also show the improvement made by all participants in relation to attitude learning objectives. When the criterion of average item ratings of 4.0 or better (a total score of at least 48) was applied, as many as 54.7 percent of the respondents were found to have made acceptable ratings on the retrospective pretest; this increased to 72.4 percent on the posttest. When the criterion of average item ratings of 4.5 or better (a total score of at least 54) was applied, only 18.7 percent of the respondents had made ideal ratings on the retrospective pretest, whereas 27.6 percent met the criterion on the posttest. (See figure 11 in Appendix B.) These substantive changes are compatible with the information resulting from the tests of statistical inference, and help to establish the efficacy of the Advanced Menu Planning workshop.

A check was made of attitude posttest scores in relation to attendance at the full workshop series versus partial attendance. As with the knowledge test data, attendance at all three versus some of the workshops was not associated with significantly enhanced learner outcomes (i.e., more positive attitudes at posttest).

SATISFACTION

A clear pattern of participant satisfaction with the training provided through the NET program was observed in the data from DHS form 4316. A maximum possible score of 20 could be obtained from the five items on this instrument, which was used with all three workshops in the series. Because the form is a standard one used by DHS, no investigation was made into its statistical properties.

Kitchen Math And Food Purchasing

The Kitchen Math and Food Purchasing workshop participants (N = 380) gave an average score of about 18.4 (s.d. = 2.1) to that workshop. Almost half of them (47.1 percent) gave the workshop the highest possible ratings on all of the scale items. Nearly all participants (95.8 percent) rated the workshop at or above the criterion for "acceptable" workshop quality (average item ratings at 3.0 or above), and 70 percent rated the workshops at or above the criterion for "ideal" workshop quality (average item ratings at 3.5 or above). In addition, the comments written by participants, in the sections provided for this purpose, were given an average favorability rating of 2.5 by the program evaluator.

Menu Planning And Kitchen Economy

Participants gave ratings indicative of high levels of satisfaction with the Menu Planning workshop sessions (N = 264). The average score for the workshop was 18.5 (s.d. = 1.8), and 48.9 percent of the respondents awarded the highest possible ratings to the workshop. Over 98 percent of the participants rated the workshop at or above the criterion for "acceptable" quality, and as many as 72.3 percent rated it at or above the criterion for "ideal" quality. Favorability, as participant comments were rated by the program evaluator, averaged 2.4 on the 4-point scale.

Some interesting differences were noted with regard to satisfaction, when the data for the CCFP and NSLP groups were considered separately. Those in the NSLP group gave the Menu Planning workshop an average score of 19.16 out of 20, while the CCFP group gave the workshop an average score of 18.30. When tested with a one-way analysis of variance (see the summary in table 15, Appendix B), the ratings given by the two groups were

found to be significantly different (F = 11.9298; df = 1, 262; p < .001). A parallel finding was observed when the favorability ratings were examined by group: the average favorability rating assigned to the comments written by the CCFP group was 2.24, while the average rating for the NSLP group was 2.84. The one-way analysis of variance completed with these data also was statistically significant (F = 19.7676; df = 1, 268; p < .001); a summary is shown in table 16 of Appendix B.

Advanced Menu Planning

As with the Kitchen Math and Menu Planning workshops, the Advanced Menu Planning workshop apparently satisfied participants' expectations with regard to quality (N = 286). The average score for this workshop was 18.44 out of 20 ($s.d.$ = 1.99). In addition, 97.8 percent of the respondents rated the workshop at or above the criterion for "acceptable" quality, and 71 percent rated the workshop at or above the criterion for "ideal" quality. Finally, the comments participants wrote on the forms were rated by the evaluator, on average, to have a favorability value of 2.7 on the 4-point scale.

There were some apparent differences in the ratings made by the two groups with regard to the Advanced Menu Planning workshop, even though the pooled data indicated the workshop to be a solid success. In this case, the average score given to the workshop by NSLP participants was 18.95, and the average score given by CCFP participants was 18.30. These ratings were found to be statistically different in an analysis of variance summarized in table 17 of Appendix B (F = 4.8649; df = 1, 270; p < .05). In addition, the favorability of participants' comments also was different: the mean rating of favorability for the NSLP group was 2.37, and the mean rating for the CCFP group was 2.79. The analysis of variance, accordingly, was statistically significant (F = 8.5337; df = 1,284; p < .001); see the summary in table 18 (Appendix B).

MENU PLANNING BEHAVIORS

Nutritional Value of Foods Served

The nutrient analysis of foods reported to be served each day for breakfast, lunch, and snacktime meals revealed that children consuming them would have obtained more than enough protein, calcium, vitamin A, vitamin C, and riboflavin. Conversely, they likely would not have obtained adequate amounts of kilocalories, iron, thiamin, or niacin; and the percentage of calories from fat was substantially above the desired target of 30 percent, while the percentage of calories from carbohydrates was below the desired target of 58 percent (see table 19). This pattern of nutritional strengths and weaknesses held true for both groups over time--that is, the MANOVA procedure showed no significant effects for treatment group (workshop attendance versus no workshops) or for treatment group by time. However, an unanticipated statistically significant difference over time was observed for 11 of the 22 post-treatment or follow-up measures of nutritional value: kilocalories at post-treatment, F (1,44) = 12.6233, $p < .001$; protein at post-treatment, F (1,44) = 4.8193, $p < .05$; iron at post-treatment, F (1,44) = 10.8000, $p < .01$; vitamin A at post-treatment, F (1,44) = 12.4464, $p < .001$; vitamin C at both post-treatment and follow-up, F (1,44) = 8.8207, $p < .01$ and F (1,44) = 6.1079, $p < .05$, respectively; thiamin at post-treatment, F (1,44) = 6.5745, $p < .05$; niacin at post-treatment, F (1,44) = 10.7554, $p < .01$; the percentage of calories from fat at follow-up, F (1,44) = 5.7235, $p < .05$, and the percentage of calories from carbohydrates at both post-treatment and follow-up, F (1,44) = 4.18369, $p < .05$ and F (1,44) = 4.9238, $p < .05$, respectively. Table 20 shows average utility scores across both the treatment and comparison groups; these are the means which need to be examined to interpret effects of time (because there were no significant differences for treatment group). Amounts of kilocalories, calories from carbohydrates, and vitamin C increased from the pre-treatment period (May 1988) to the post-treatment period (September 1988), while observed values for iron, vitamin A, thiamin, and niacin decreased from May to September. In addition, observed average values of all nutritional contents except calcium, riboflavin, and percentage of calories from fat decreased from September to November (the 3-month follow-up period) although the decrease was statistically significant only for vitamin C and the percentage of calories from carbohydrates.

The increase in percentage of calories from fat between September and November also was significant: F (1,44) = 5.7235, $p < .05$. Thus it seems that the improvements in calorie and nutrient value of foods served was temporary, occurring shortly after the workshops but not sustained over time, and in general the nutritional value of meals served in November was poorer than those served before the workshops series began, particularly in view of the significantly lower amount of vitamin C (even though the raw amount was adequate) and higher percentage of calories from fat characterizing those later meals.

Meal Pattern Compliance Scores

The initial MANOVAs used to analyze the four subscores and the overall meal pattern compliance scores showed that statistically significant differences existed between the workshop and comparison groups almost across the board (see table 21). That is, even before participating in the NET workshop series, the menu records from centers in the treatment group more often listed lunches which contained all four required components--bread/bread alternate, meat/meat alternate, fluid milk, and fruit/vegetable, F (1,399) = 3.8809, $p < .05$; more often listed complete and accurate descriptions of food (e.g., "4 lbs. ground chuck" versus "meatloaf"), F (1,399) = 15.2041, $p < .001$; and more often specified quantities of foods that would yield an adequate number of standard portions for the number and ages of children present each day, F (1,399) = 34.6117, $p < .001$. The separate MANOVA executed on the summed, overall meal pattern score paralleled the subscore results: F (1,399) = 30.6054, $p < .001$. The MANOVAs did not indicate the presence of any effects for time, nor for interactions between treatment group and time.

Because of the apparent pre-existing differences between the treatment and comparison groups, the evaluator elected to re-analyze the meal pattern scores using multiple analyses of covariance (MANCOVA), with pre-workshop meal pattern scores as covariates. When this procedure was executed with the four subscores, one of the four--about reimbursable or "allowable" foods--was found to have significant problems of within-cells regression; consequently, only the MANCOVA on the overall meal pattern score will be reported here.

Findings from the MANCOVA indicated that, when controlling for variability associated with the pre-workshop measures, there was still a statistically significant difference between the workshop and comparison groups after the workshops--F (1,398) = 29.6025, $p < .001$--which apparently was not sustained at the 3-month follow-up visit. Thus, the NET workshops series made a positive difference in the short run that was no longer significant with the passage of time.

Most Frequently Served Foods

Based on information from participants' daily menu records, the ten most frequently served foods in the child care centers were (in descending order): whole milk; white bread or white bread rolls; orange juice or oranges; processed cheese; apple juice, apples, or applesauce; saltines or soda crackers; fruit cocktail, either by itself or in gelatin; canned peaches; whole wheat bread; and graham crackers.

Four of the ten most popular foods met requirements for the bread or bread alternate component of the CCFP meal patterns, and another four met requirements for the fruit/vegetable component. The remaining two were dairy products: whole milk, to fulfill the fluid milk requirement of the meal patterns, and processed cheese, used as a meat alternate in the meal patterns.

This list of most frequently served foods helps to illuminate the findings from the nutrient analysis in relation to the meal pattern scores. Having whole milk and processed cheese served so often is consistent with the relatively high amounts of protein, calcium, riboflavin, and fat discovered in the nutrient analysis; and, as noted earlier, fluid milk is a required component for both breakfast and lunch. Similarly, it is not surprising that the remaining eight high-frequency foods are bread/bread alternates and fruits, because each of these two components are also required at both breakfast and lunch (unlike meats/meat alternates, required at lunch but not breakfast). The fact that juices (either apple or orange) were served far more often than whole fruits to fulfill the fruit/vegetable component requirements is consistent with the strong showing of vitamins A and C in the nutrient analysis, as well as the poor showing for carbohydrates. Finally, the very heavy reliance upon white breads/rolls and saltines/soda crackers to fulfill the requirement for a

bread/bread alternate is consistent with less-than-adequate amounts of iron, niacin, and thiamin, and in the case of crackers the relatively high percentage of calories from fat--using whole grain breads instead probably would supply more of these vital nutrients without unnecessarily adding to the meals' fat content. The fact that none of the top eight foods is a particularly good source of iron, thiamin or niacin is remarkable, and indicates a need for more variety and/or changed emphasis in the way the meal pattern requirements are fulfilled.

DISCUSSION

From the results presented in the last section of this report, and summarized on p. 19, it is clear that the workshop series as a whole could be termed effective: the majority of the tests of inferential statistics yielded significant results, most of which were in the desired direction. Thus, in general, participants' child-nutrition-related knowledge and attitude test performance improved substantially over time, and their behaviors did show some evidence of short-term positive change. Finally, on average, participants reported high levels of satisfaction with the training they received through the NET program workshops.

Within the larger picture of success, some relatively clear shortcomings were identified. In particular, the Menu Planning workshop appeared to be less consistent than the Advanced Menu Planning workshop in its impact upon participant groups: CCFP participants' attitude scores failed to show significant improvement, and NSLP participants' knowledge test scores failed to show statistically significant improvement. Overall, performance on the Menu Planning knowledge test was poorer than that on either of the other two knowledge tests: the highest average score (on the follow-up test) still indicated that participants were only answering about half of the test items correctly.

Several comments can be made about the data from the Menu Planning workshop. First, one can speculate that the generally low scores may mean that the knowledge test was too difficult for the respondents. This thought has some credence, in view of the

satisfactory internal consistency of the test, the number of pretest items on which performance was lower than chance, and the failure of all participants to master individual items on the test.

Second, the NSLP group could have been operating at a relative disadvantage with regard to the knowledge test: four months intervened between their sessions of the Kitchen Math and Menu Planning workshops, whereas only about one month lapsed between the two workshops for CCFP participants. For both groups, only about one month passed between the Menu Planning and Advanced Menu Planning workshops; and the data for latter are uniformly positive. Hence, it seems reasonable to speculate that the first two learning sessions may have been spread too far apart in time for the NSLP group.

Third, a review of the item-level response distributions on the Menu Planning knowledge test led to an interesting observation. People who apparently were aware that they did not know the correct response on the pretest--as one would suspect, in the case of leaving an item blank or in the case of circling multiple answers to an item--seemed to be able to use the information obtained in the workshop to respond correctly on the posttest. This was evidenced by decreases in the frequency of blank items and items with multiple responses. Conversely, those who unknowingly made incorrect responses on the pretest seemed to continue to make them on the posttest, as evidenced by similar frequencies of selection of distractors over time. Thus it seems reasonable to understand item response patterns in terms of Piagetian cognitive theory: those who may have identified inadequate cognitive schemas on the pretest experienced the uncomfortable state of cognitive disequilibrium. Consequently, such individuals would have been motivated to accommodate new information received during the workshop, thereby resolving the disequilibrium while also incorporating the knowledge needed to answer an item correctly. In contrast, those who may not have experienced disequilibrium as a function of taking the pretest would have merely assimilated new information, not changing the underlying cognitive schema which initially led them to select a distractor. Ergo, they would be expected to continue to select the distractor, as apparently happened.

The failure to detect statistically significant changes in attitude scores, on the part of CCFP participants in the Menu Planning workshop, poses an interesting dilemma: this group was able to demonstrate better performance on the knowledge test, yet attitude scores did not show major change. Conversely, knowledge test performance by NSLP participants did not statistically improve, but the attitudes scores for this group did. On the one hand, this brings to mind a paraphrase from Leon Festinger about cognitive dissonance theory: people value that for which they have in some way suffered. From this perspective, one would predict that the group which apparently struggled more to learn the workshop content, would be the one to value it more, as evidenced by the attitude scores. On the other hand, there is a plausible explanation related to the measurement of attitudes: that is, if a ceiling effect occurred with the scale, it would be very difficult to observe a statistically significant, positive change in performance over time. In fact, the average scores on the attitude scale were relatively high: over 49 points out of 60; yet that still seems to leave sufficient room for improvement as to be detectable in statistical tests. At this point one must wonder about other, moderating variables which could have been responsible for inhibiting growth of more positive attitudes (especially since these results are inconsistent with the KABINS model): the satisfaction data can serve to illuminate such apparently contradictory results.

It was noted in the Results section that statistically significant differences existed in the levels of satisfaction reported by the two groups of participants. Specifically, those in the NSLP group gave higher ratings to the Menu Planning workshop, and wrote comments which the evaluator judged to be more favorable, than those from the CCFP group. Thus, perhaps instead of thinking about the data as reflecting three discrete outcome indicators, it is more helpful to group them into the cognitive (knowledge) domain and the affective (attitudes and satisfaction) domain. The Menu Planning workshop was successful in the cognitive domain with CCFP participants, but not as successful in the affective domain; and the reverse held true for NSLP participants. While it is impossible to further explore the nature of the relationships among the variables in the present study, it does seem clear that "motivational and social-contextual factors," to use the language of Alexander and Judy (1988, p. 395), probably ought to continue to be monitored in NET evaluations.

The behavioral findings are of greatest interest to the present study, as the Texas NET program (like so many others) has had limited past success in effecting behavioral change. Indeed, many educators are familiar with the pattern of declining performance over time when instructional time is brief, intense, and does not allow for repeated guided practice sessions--as is the case with single workshop sessions.

Two past studies (1979, 1986) conducted by NET revealed that meals recorded on forms 1530 provided insufficient amounts of calories, iron, vitamin C, thiamin, niacin, and calcium. Of these, only calcium and vitamin C did not continue to pose a problem in 1988. In addition to the recurrent shortfalls, a new one was found to exist for the percentage of calories from carbohydrates.

It is important to note that the areas of improvement relative to past studies, and the nutrients identified in the current study as being adequately supplied, probably directly reflect the CCFP meal pattern requirements. For instance, fluid milk is a required meal component at breakfast and lunch, and children were obtaining high amounts of protein, calcium, and riboflavin--milk supplies these nutrients in relative abundance. Also, each day, one known source of vitamin C is required: children were getting enough of this nutrient.

Other patterns in the data likely are reflective of patterns which characterize the nation as a whole. Americans generally are thought to consume more protein and more fat than is required for a healthy diet, and these were in relative excess in the present study.

Finally, it was disappointing to note the decreases in the meals' nutritional value over time (particularly for calories, carbohydrates, and iron) as well as the lack of relative improvement by the treatment group. The possible impacts of either seasonal availability of foods, or prevailing economic conditions in this state, are unknown yet must be considered as possible sources of influence on nutrient content of CCFP meals that were beyond the scope of this evaluation study.
It is quite possible that the NET workshop series is an insufficiently powerful intervention to effect such improvement, despite its clear capability to improve knowledge and attitudes.

In the same breath, however, the temporary improvement in treatment group centers' meal pattern scores counters this hypothesis and simultaneously raises an intriguing question: How is it that increases (even temporary ones) could occur in centers' compliance with meal pattern requirements, as measured in the present study, without there being a parallel improvement in the nutritional value of the meals served?

There are a number of possible explanations. First is the possibility that compliance with meal pattern requirements and nutritional value of foods are independent, but logic dictates that this cannot be completely true. The meal pattern requirements are based in part upon food groups designed to provide children access to the ten leader nutrients. However, to the evaluator's knowledge, there have not been documented examples of cycle menus that both fulfill CCFP meal pattern requirements and provide adequate amounts of all ten leader nutrients, until now: Texas NET program staff have just developed such menus, that fulfill both the meal pattern requirements and children's nutritional needs, that others will be able to use and follow. (The cycle menus are targeted for distribution in January, 1990). Clearly the complexity of menu planning to meet both CCFP meal pattern requirements and fulfill children's nutritional needs mitigates against it's being accomplished easily--yet this is what the CCFP expects of its participants.

Other explanations for the lack of uniformly positive findings involve limitations of the present study, in terms of the data collection and coding procedures used. First, the participants were asked to send in all three sets of menu records after the conclusion of the workshop series. It is quite possible that those in the treatment group may have "cleaned up" their forms 1530 to more closely resemble their newly-informed vision of what the forms should look like; or, because selection was not random, those in the treatment group may have kept better records all along due to their apparent interest. Conversely, the number of coding conventions that had to be adopted to complete the nutrient analysis may have served to "wash out" some differences between groups that might have existed. For instance, all foods were analyzed in terms of CCFP standard portions for 3- to 5-year-old children; so whether or not the correct amount of food actually had been served was immaterial to the nutrient analysis. Other assumptions also had to be made, particularly when menu records

were incomplete: if "cheese" was all that had been written down, it was uniformly assumed to be processed cheese; "milk" was assumed to be whole milk; and in a few cases the descriptions were so vague as to require a "known" substitution (e.g., "home plate cookies" were assumed to be chocolate chip cookies for the nutrient analysis, as the latter are known to be the most popular/frequently consumed cookie in the U.S.).

A final comment regarding the nutritional strengths and weaknesses of the menu records in this study has to do with the repetitious serving of foods at the child care centers. On the one hand, nutritionists generally advise that one of the best ways to assure a proper diet is through the consumption of a wide variety of foods each week. On the other hand, when trying to instill good eating habits in children, nutritionists often advise against repeatedly serving the same foods over and over to children, as they likely will become bored with (or worse still, averse to) foods which are, in and of themselves, nutritious. Children eating meals like the ones in this study may be at-risk for getting "turned off" to a number of fruits and vegetables that are served frequently (e.g., apples, oranges, canned peaches) in spite of the availability of a tremendous variety from which to choose. In addition, the more repetition of foods, the less likely it is that children can obtain enough of all ten leader nutrients for optimal health and growth. Clearly a vicious cycle of sorts seems to exist in the CCFP that may require more on-going support and technical assistance to break, than NET's workshop series has to offer. After all, the most-frequently served foods were uniformly characterized by being convenient to serve, being economical, and being familiar to the children consuming them.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE PRACTICE

In general, the workshop series was effective in promoting desired changes in participants' knowledge and attitudes. The Menu Planning workshop appeared to be the weakest intervention of the three, although the apparent difficulty of the instrument used to assess knowledge may have contributed more towards this finding than did any possible deficits in the training process. Other possible contributors to the weaker impact of this workshop,

identified in the discussion, had to do with how closely distributed the training sessions were in time, and how effectively participants' existing knowledge/belief systems were challenged during workshop delivery.

The workshop series appeared less effective in terms of improving participant behaviors. Menu records from workshop and comparison groups had similar nutritional weaknesses over time and showed similar food selections, although compliance with CCFP meal pattern requirements appeared to improve temporarily among workshop participants.

Some suggestions for the NET program staff to consider, in view of the results of this study, are as follows:

- It may be desirable to group workshop sessions in a series, so that all three can be completed within one quarter of the fiscal year.

- The test for the Menu Planning workshop may need to be reexamined and/or revised, both from the perspective of overall difficulty and in terms of the particularly poor performance on items #2 (an easy-to-use guide for good food selection), #4 (what are the two most important factors to know in order for meals to be reimbursable), and #10 (identifying true statements about a given menu).

- The trainers and/or the workshop curricula may need to do a better job of challenging participants' existing cognitive/affective schema, to open them to improvement. This is extremely difficult for any instructor to do, yet it seems critical in view of the recent observation made by Alexander and Judy (1988, p. 386): "Inaccurate or incomplete domain knowledge may inhibit or interfere with learning."

- Because of the renewed emphasis being placed upon moderating variables in the learning process, and because of the parallels observed between two discrete outcome variables in one domain in the current study, it is suggested that NET staff continue the practice of collecting affective data in their annual evaluations.

- Because of the obvious complexity of the task of menu planning in relation to both meal pattern requirements and children's nutritional needs, NET staff are urged to distribute their exemplary set of cycle menus that meet both sets of criteria, so that others can pattern after them and ultimately Texas children will benefit in terms of health, growth, and acquisition of good eating habits for life.

- Using a workshop series to deliver training led to partial and unsustained improvement in participants' behaviors. On the one hand, this confirms the components of the KABINS model. On the other, it conflicts with the simple path used to connect those components. Thus, NET staff should probably continue to explore more extended, intensive methods of service delivery with an eye toward more accurate descriptions of optimal ways to combine elements of the KABINS model, such that behavioral change will be realized more often.

In conclusion, it appears that the NET program's new approach to workshop delivery is a powerful vehicle for effecting improvements in participants' knowledge and attitudes. Also, the recipients of this training generally were pleased with the quality of their learning experiences. The preconditions for behavioral change, as per USDA's KABINS model, were met; the lack of major and sustained behavioral improvement was therefore disappointing and led to renewed questioning about the model's adequacy.

REFERENCE

Alexander, P. and Judy, J. E. (1988). The interaction of domain-specific and strategic knowledge in academic performance. Review of Educational Research, 58(4), 375-404.

APPENDIX A:

INSTRUMENTS

KITCHEN MATH AND FOOD PURCHASING

Office Use Only
Type pre post flo 1 2 3 Version (1) 2 3 Workshop ID:

Exercise: ___

Your Social Security Number:

_____ ___ _____

Today's date: Mo/ Day/ Yr

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DIRECTIONS: Read each item carefully. For each item CIRCLE the number next to the ONE BEST ANSWER.

1. Nutrition is:

   1 the food you eat and how your body uses it
   2 eating
   3 the calories in food
   4 a vitamin and mineral pill
   5 three meals a day

2. A proportion is an equation which:

   1 says that two numbers are equal
   2 compares two numbers
   3 cannot be solved
   4 says that two ratios are equal
   5 says that a decimal number is the same as a fraction

3. Solve the following problem:

   If $\frac{14.5}{6} = \frac{75}{D}$ then D = ?

   1 31.03
   2 1.16
   3 6525.0
   4 181.25
   5 3.103

4. Which of the following is TRUE?

1 Math is important in the kitchen only when food is prepared for more than 30 children.
2 Decimals have no place in kitchen math because measuring utensils are made for fractions.
3 When you know how to use decimals, you don't need fractions anymore.
4 Using decimals makes math calculations faster and easier.
5 Decimals are needed only when your calculations involve money.

5. What three things do you need just before calculating how much food to prepare for a meal?

1 amount of food purchased, number of children, age of children
2 number of children, number of servings, serving size
3 amount of food purchased, a recipe, number of children
4 a recipe, number of servings, serving size
5 a recipe, age of children, amount of food purchased

6. The most important use of the FOOD BUYING GUIDE FOR CHILD NUTRITION PROGRAMS is to help you:

1 determine which foods are most nutritious
2 keep track of how much money you are spending on food
3 determine how much food to prepare to meet meal requirements
4 understand nutrition labeling
5 buy foods that the children will like

7. What's wrong with this proportion problem?

$$\frac{\text{Tablespoons flour}}{\text{Cups milk}} = \frac{\text{Cups flour}}{\text{Cups milk}}$$

1 You can't have two ingredients in the same problem--you can have flour or milk, but not both.
2 The units of measure for flour and for milk have to be the same.
3 The proportion has to have decimal numbers in it.
4 It doesn't have enough numbers in it.
5 The unit of measure for flour has to be the same in both ratios--either Tablespoons or Cups, but not both.

8. Proportions are an important part of kitchen math because they:

1 are the required unit for measuring ingredients for standardized recipes.
2 take the place of ratios and decimals.
3 are needed when your calculations involve money.
4 help you to adjust the quantity of ingredients in standardized recipes to fit the servings required by your center.
5 are needed to measure the yield of standardized recipes.

9. The sections of the FOOD BUYING GUIDE FOR CHILD NUTRITION PROGRAMS are:

1 meat/meat alternates; vegetables and fruits; bread/bread alternates; milk; other foods
2 kitchen math; nutrition labeling; bargain hunting; kitchen sanitation
3 food service management; equivalent units charts; kitchen math
4 food and health; children's food preferences; standardized recipes
5 purchase units; food groups; equivalent measures

10. A quart is what fraction of a gallon?

1 1/2
2 1/3
3 1/4
4 1/5
5 1/6

11. Which of the following statements is TRUE?

1 1/2 = .25
2 1/4 = .50
3 2/3 = .33
4 50/100 = .50
5 25/100 = 2.5

12. Which of the following fractions is largest?

1 1/2
2 1/3
3 1/4
4 1/5
5 1/6

13. If a recipe standardized for 50 servings calls for 2 cups of milk, how much milk would be needed if the recipe was adjusted to serve 65?

1 5 cups
2 2.6 cups
3 3 cups
4 10 cups
5 2.25 cups

14. Using the following information, calculate the amount of ground beef needed to serve 50 one-ounce portions.

A. Food as purchased	B. Purchase unit	C. Servings per purchase unit	D. Serving size or portion & contribution to the meal requirement	E. Purchase units for 100 servings	F. Additional yield information
Ground Beef (Market Style** no more than 30% fat)	Pound	11.20	1 ounce cooked lean meat	8.95	1 pound AP = 0.70 pound cooked meat

1 3.75 pounds
2 11.20 pounds
3 4.46 pounds
4 56 pounds
5 10 pounds

15. The Nutrition Education and Training (NET) Lending Library collection:

1 can only be used by persons who have attended NET workshops
2 is a good resource to use when planning menus and food purchases
3 requires borrowers to appear in person to pick up and return materials
4 charges a small fee for checking out materials
5 all of the above are correct

KITCHEN MATH AND FOOD PURCHASING

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Workshop ID:

Exercise:___

Your Social Security Number:

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Today's date: Mo/ Day/ Yr

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DIRECTIONS: Read each item carefully. For each item CIRCLE the number next to the ONE BEST ANSWER.

1. The most important use of the FOOD BUYING GUIDE FOR CHILD NUTRITION PROGRAMS is to help you:

   1 determine which foods are most nutritious
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   3 determine how much food to prepare to meet meal requirements
   4 understand nutrition labeling
   5 buy foods that the children will like

2. Which of the following fractions is largest?

   1 1/2
   2 1/3
   3 1/4
   4 1/5
   5 1/6

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If $\frac{14.5}{6} = \frac{75}{D}$, then D = ?

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15. The sections of the FOOD BUYING GUIDE FOR CHILD NUTRITION PROGRAMS are:

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2 kitchen math; nutrition labeling; bargain hunting; kitchen sanitation
3 food service management; equivalent units charts; kitchen math
4 food and health; children's food preferences; standardized recipes
5 purchase units; food groups; equivalent measures

KITCHEN MATH AND FOOD PURCHASING

Office Use Only
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Exercise: ___

Your Social Security Number:

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Today's date: Mo/ Day/ Yr

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DIRECTIONS: Read each item carefully. For each item CIRCLE the number next to the ONE BEST ANSWER.

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   2 1/4 = .50
   3 2/3 = .33
   4 50/100 = .50
   5 25/100 = 2.5

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   4 10 cups
   5 2.25 cups

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4 understand nutrition labeling
5 buy foods that the children will like

15. Nutrition is:

1 the food you eat and how your body uses it
2 eating
3 the calories in food
4 a vitamin and mineral pill
5 three meals a day

MENU PLANNING AND KITCHEN ECONOMY

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DIRECTIONS: Read each item carefully. For each item CIRCLE the number next to the ONE BEST ANSWER.

1. Nutrition is:

   1 the food you eat and how your body uses it
   2 eating
   3 the calories in food
   4 a vitamin and mineral pill
   5 three meals a day

2. An easy-to-use guide for good food selection is:

   1 USDA meal requirements
   2 nutrition education
   3 Basic Four Food Groups
   4 calorie counting
   5 all of the above are correct

3. Given the following menu, what would be best to change for a group of young children?

   Oven-Fried Chicken
   Baked Potato Broccoli
   Chocolate Cake
   Milk

   1 Serve chicken and milk only BECAUSE of protein needs of the growing child.
   2 Substitute a lettuce salad for the baked potato BECAUSE children like to eat vegetables that are the same color.
   3 Omit broccoli BECAUSE most children do not like to eat vegetables.
   4 Serve a blueberry muffin instead of chocolate cake BECAUSE children should limit their intake of foods from the fifth food group.
   5 Omit potato BECAUSE it's high in carbohydrates.

4. What are the two most important factors to know in order for meals to be reimbursable?

1 serving foods from the basic four food groups and correct quantities of the foods
2 serving allowable food components and serving the correct quantities of the food components
3 serving good sources of Vitamin C and Vitamin A
4 serving several good sources of iron-rich foods and in the proper amounts
5 serving foods which contain the "leader" nutrients and using cycle menus

5. Which of the following is a good source of Vitamin C?

1 an egg
2 a cup of milk
3 1/2 cup of green beans
4 a cup of corn flakes
5 an orange

6. The Food Buying Guide for Child Nutrition Programs contain which of the following:

1 Child Nutrition (CN) labeling
2 List of allowable food components
3 Meal pattern charts for USDA Child Nutrition Programs
4 Product analysis of prepared foods
5 2 and 3

7. Which is the best way to make sure your body is getting enough nutrients?

1 eat yogurt
2 eat a variety of foods which includes the 10 "leader" nutrients
3 eat lots of fruits and vegetables
4 take vitamin pills
5 eat meat every day

8. A cycle menu is:

1 a set of carefully planned menus that last at least 2 weeks and not longer than 6 weeks, and are used again and again
2 a time saver
3 changed when fruits and vegetables are in season
4 changed to allow for new recipes and holiday menus
5 all of the above are correct

9. Protein, carbohydrate, fat, Vitamin A, Vitamin C, thiamin, riboflavin, niacin, calcium, and iron are:

1 basic food groups
2 trace minerals
3 dietary guidelines
4 leader nutrients
5 USDA meal patterns

10. Evaluate this menu to determine which of the following statements is TRUE?

Bean and Cheese Burrito
Winter Squash
Carrots
Orange
Milk

1 There is no food with iron in this meal.
2 There is no food with Vitamin A in this meal.
3 There is no food with Vitamin C in this meal.
4 There are not enough contrasting temperatures in this meal.
5 There are not enough contrasting colors and textures in this meal.

11. Which of the following food and/or beverage items is a reimbursable milk component?

1 cheddar cheese
2 yogurt
3 fluid milk
4 non-fat dry milk
5 evaporated milk

12. The Nutrition Education and Training (NET) Lending Library collection:

1 can only be used by people who have attended NET workshops
2 is a good resource to use when developing menus
3 requires borrowers to appear in person to pick up and return materials
4 charges a small fee for checking out materials
5 all of the above are correct

13. Which of the following are the three required components of the breakfast meal in the Child Nutrition Programs?

1 milk, fruit or vegetable, and bread/bread alternate
2 milk, meat/meat alternate, and bread/bread alternate
3 milk, fruit or vegetable, and meat/meat alternate
4 bread/bread alternate, fruit or vegetable, and meat/meat alternate
5 all of the above are acceptable

14. Which of the following helps cut cost in the kitchen?

1 Serve fresh produce only in its season.
2 Use fewer convenience foods.
3 Serve foods that are part of meal pattern requirements and are nutritious.
4 Before you prepare a meal or snack, adjust recipes to the number of servings you need.
5 All of the above are correct.

15. Which of the following snacks is richest in iron?

1 an apple
2 potato chips and soda pop
3 Kool-Aid and chocolate chip cookies
4 peanut butter on whole wheat bread
5 an orange

MENU PLANNING AND KITCHEN ECONOMY

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Workshop ID:

Exercise: ____

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DIRECTIONS: Read each item carefully. For each item CIRCLE the number next to the ONE BEST ANSWER.

1. Which is the best way to make sure your body is getting enough nutrients?

   1 eat yogurt
   2 eat a variety of foods which includes the 10 "leader" nutrients
   3 eat lots of fruits and vegetables
   4 take vitamin pills
   5 eat meat every day

2. What are the two most important factors to know in order for meals to be reimbursable?

   1 serving foods from the basic four food groups and correct quantities of the foods
   2 serving allowable food components and serving the correct quantities of the food components
   3 serving good sources of Vitamin C and Vitamin A
   4 serving several good sources of iron-rich foods and in the proper amounts
   5 serving foods which contain the "leader" nutrients and using cycle menus

3. The Nutrition Education and Training (NET) Lending Library collection:

   1 can only be used by people who have attended NET workshops
   2 is a good resource to use when developing menus
   3 requires borrowers to appear in person to pick up and return materials
   4 charges a small fee for checking out materials
   5 all of the above are correct

4. Protein, carbohydrate, fat, Vitamin A, Vitamin C, thiamin, riboflavin, niacin, calcium, and iron are:

1 basic food groups
2 trace minerals
3 dietary guidelines
4 leader nutrients
5 USDA meal patterns

5. Nutrition is:

1 the food you eat and how your body uses it
2 eating
3 the calories in food
4 a vitamin and mineral pill
5 three meals a day

6. A cycle menu is:

1 a set of carefully planned menus that last at least 2 weeks and not longer than 6 weeks, and are used again and again
2 a time saver
3 changed when fruits and vegetables are in season
4 changed to allow for new recipes and holiday menus
5 all of the above are correct

7. Which of the following are the three required components of the breakfast meal in the Child Nutrition Programs?

1 milk, fruit or vegetable, and bread/bread alternate
2 milk, meat/meat alternate, and bread/bread alternate
3 milk, fruit or vegetable, and meat/meat alternate
4 bread/bread alternate, fruit or vegetable, and meat/meat alternate
5 all of the above are acceptable

8. The Food Buying Guide for Child Nutrition Programs contain which of the following:

1 Child Nutrition (CN) labeling
2 List of allowable food components
3 Meal pattern charts for USDA Child Nutrition Programs
4 Product analysis of prepared foods
5 2 and 3

9. Given the following menu, what would be best to change for a group of young children?

Oven-Fried Chicken
Baked Potato Broccoli
Chocolate Cake
Milk

1 Serve chicken and milk only BECAUSE of protein needs of the growing child.
2 Substitute a lettuce salad for the baked potato BECAUSE children like to eat vegetables that are the same color.
3 Omit broccoli BECAUSE most children do not like to eat vegetables.
4 Serve a blueberry muffin instead of chocolate cake BECAUSE children should limit their intake of foods from the fifth food group.
5 Omit potato BECAUSE it's high in carbohydrates.

10. Which of the following snacks is richest in iron?

1 an apple
2 potato chips and soda pop
3 Kool-Aid and chocolate chip cookies
4 peanut butter on whole wheat bread
5 an orange

11. Evaluate this menu to determine which of the following statements is TRUE?

Bean and Cheese Burrito
Winter Squash
Carrots
Orange
Milk

1 There is no food with iron in this meal.
2 There is no food with Vitamin A in this meal.
3 There is no food with Vitamin C in this meal.
4 There are not enough contrasting temperatures in this meal.
5 There are not enough contrasting colors and textures in this meal.

12. Which of the following helps cut cost in the kitchen?

1 Serve fresh produce only in its season.
2 Use fewer convenience foods.
3 Serve foods that are part of meal pattern requirements and are nutritious.
4 Before you prepare a meal or snack, adjust recipes to the number of servings you need.
5 All of the above are correct.

13. An easy-to-use guide for good food selection is:

1 USDA meal requirements
2 nutrition education
3 Basic Four Food Groups
4 calorie counting
5 all of the above are correct

14. Which of the following is a good source of Vitamin C?

1 an egg
2 a cup of milk
3 1/2 cup of green beans
4 a cup of corn flakes
5 an orange

15. Which of the following food and/or beverage items is a reimbursable milk component?

1 cheddar cheese
2 yogurt
3 fluid milk
4 non-fat dry milk
5 evaporated milk

1988

Office Use Only
Version: (1) 2 3
Type: 1 2 3

ID

Exercise:
Your SSN: _____ _____ _____
Today's Date: _____

Directions: CIRCLE the number that goes with the one best answer for each item.

1. Which of the following is true if you are serving a "cheese food" for a meat alternate?

   1 It is necessary to use twice as much cheese food as pasteurized process or natural cheese.
   2 "Cheese food" is not an allowable meat/alternate.
   3 "Cheese food" may be used as meat alternate only if it is served with a natural or pasteurized processed cheese.
   4 "Cheese food" may be used as a meat alternate only if it is served with another meat.
   5 None of the above are correct.

2. By USDA standards, in order for a meal to be reimbursable it must:

   1 follow the basic four food groups
   2 include a variety of foods
   3 include the six classes of nutrients
   4 follow established food components served in correct quantities
   5 follow U.S. RDAs

3. Which of the following may not be used as a meat alternate?

   1 Dry beans and peas
   2 Eggs
   3 Peanut butter
   4 Pecans
   5 Cream cheese

4. The Nutrition Education and Training (NET) Lending Library Collection:

   1 can be used only by graduates of NET workshops
   2 has a two volume catalog to help you choose appropriate materials
   3 requires you to appear in person to pick up and return materials
   4 charges a small fee for services
   5 all of the above are correct

5 Which of the following statements is true?

1 1/2 = .25
2 1/4 = .50
3 2/3 = .33
4 3/4 = .75
5 4/5 = .20

6. Using the following information, calculate the amount of ham needed to serve 135 one-ounce portions.

1. Food as purchased	2. Purchase unit	3. Servings per purchase unit	4. Serving size or portion and contribution to meal requirement	5. Purchase units for 100 servings	6. Additional yield information
Ham, canned	pound	10.20	1 ounce heated lean meat	9.80	pound AP = 0.64 pound cooked lean meat

1 10.25 pounds
2 13.23 pounds
3 86.06 pounds
4 8.43 pounds
5 9.80 pounds

7. Increase fiber in the diet by adding:

1 milk
2 fish and poultry
3 eggs
4 whole grain cereals
5 all of the above are correct

8. The components of the Lunch Menu Pattern are:

1 fluid milk, meat/alternate, vegetables and/or fruits, bread/alternate
2 fluid milk, meat/alternate, bread/alternate
3 cheese, fruit, roll
4 yogurt, vegetable, bread
5 fluid milk, fruit or vegetables, bread/alternate

9. Which of the following is correct about the bread component

1 Cereals must be whole grain, enriched, or fortified
2 The bread served for lunch/supper must be complimentary to the main dish.
3 Bread/bread alternate must contain whole grain or enriched flour or meal as the predominant ingredient by weight as specified in label or according to the recipe.
4 Each breakfast, lunch or supper must contain a bread/bread alternate.
5 All of the above are correct.

10. If you question whether a food is an allowable component, where would you look?

1 Dietary Guidelines for Americans
2 Fiber Poster
3 Building a Better Diet
4 Food Buying Guide for Child Nutrition Programs
5 None of the above

11. The best way for most people to obtain a balance of nutrients in the diet is:

1 take a multiple vitamin pill every day
2 eat only certain types of foods
3 eat a lot of raw fruits and vegetables
4 eat a lot of meat
5 eat a variety of foods

12. Which of the following is a reimbursable milk component?

1 yogurt
2 vanilla pudding
3 cottage cheese
4 fluid milk
5 nonfat dry milk

13. The sections of the Food Buying Guide for Child Nutrition Programs are:

1 meat/meat alternate
vegetables & fruits
bread/bread alternates
milk
other foods

2 kitchen math
nutrition labeling
bargain hunting
kitchen safety

3 food service management
equivalent units charts
kitchen math

4 food & health
children's food preferences
standardized recipes

5 fractions
decimals
purchase units
food groups
equivalent measures

14 The most important use of the Food Buying Guide for Child Nutrition Programs is to help you:

1 determine which foods are most nutritious
2 keep track of how much money is spent on food
3 determine how much food to prepare to meet meal requirements
4 understand nutrition labeling
5 buy foods the children will like

15. The three components of the Breakfast Menu Pattern are fluid milk and:

1 fruit or vegetable, meat or alternate
2 breads or cereals, fats
3 fruit or vegetables, breads or cereals
4 breads or cereals, meat or alternate
5 fruit or vegetables, fats

16. Which of the following is correct about completing Daily Menu records (1530's, T-7648, and T-7649)?

1 You may record the amounts of food used by cups, ounces, pounds, gallons, etc. as long as it corresponds to foods you are serving.
2 It is critical you give enough information to show the actual amount of food prepared.
3 Menu records are mandatory and must be completed daily.
4 The most important information to include on the record is name of food component and the exact amount used of the food component.
5 All of the above are correct.

17. The first ingredient listed on a food label:

1 has the highest nutrient value
2 is the best source of iron
3 has the most calories
4 is the predominant ingredient by weight
5 all of the above are correct

ADVANCED MENU PLANNING

1983

Office Use Only
Version: 1 (2) 3
Type: 1 2 3

ID

Exercise:
Your SSN:_____ _____ _____
Today's Date:_____

Directions: CIRCLE the number that goes with the one best answer for each item.

1. The sections of the Food Buying Guide for Child Nutrition Programs are:

   1 meat/meat alternate
   vegetables & fruits
   bread/bread alternates
   milk
   other foods

   2 kitchen math
   nutrition labeling
   bargain hunting
   equivalent measures
   kitchen safety

   3 food service management
   equivalent units charts
   kitchen math

   4 food & health
   children's food preferences
   standardized recipes

   5 fractions
   decimals
   purchase units
   food groups

2. The components of the Lunch Menu Pattern are:

   1 fluid milk, meat/alternate, vegetables and/or fruits, bread/alternate
   2 fluid milk, meat/alternate, bread/alternate
   3 cheese, fruit, roll
   4 yogurt, vegetable, bread
   5 fluid milk, fruit or vegetables, bread/alternate

3. Increase fiber in the diet by adding:

   1 milk
   2 fish and poultry
   3 eggs
   4 whole grain cereals
   5 all of the above are correct

4. The three components of the Breakfast Menu Pattern are fluid milk and:

   1 fruit or vegetable, meat or alternate
   2 breads or cereals, fats
   3 fruit or vegetables, breads or cereals
   4 breads or cereals, meat or alternate
   5 fruit or vegetables, fats

5. By USDA standards, in order for a meal to be reimbursable it must:

   1 follow the basic four food groups
   2 include a variety of foods
   3 include the six classes of nutrients
   4 follow established food components served in correct quantities
   5 follow U.S. RDAs

6. The Nutrition Education and Training (NET) Lending Library Collection:

   1 can be used only by graduates of NET workshops
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   1 It is necessary to use twice as much cheese food as pasteurized process or natural cheese.
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   5 None of the above are correct.

8. Which of the following is a reimbursable milk component?

   1 yogurt
   2 vanilla pudding
   3 cottage cheese
   4 fluid milk
   5 nonfat dry milk

9. If you question whether a food is an allowable component, where would you look?

   1 Dietary Guidelines for Americans
   2 Fiber Poster
   3 Building a Better Diet
   4 Food Buying Guide for Child Nutrition Programs
   5 None of the above

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4 The most important information to include on the record is name of food component and the exact amount used of the food component.
5 All of the above are correct.

12. The most important use of the Food Buying Guide for Child Nutrition Programs is to help you:

1 determine which foods are most nutritious
2 keep track of how much money is spent on food
3 determine how much food to prepare to meet meal requirements
4 understand nutrition labeling
5 buy foods the children will like

13. Using the following information, calculate the amount of ham needed to serve 135 one-ounce portions.

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16. Which of the following may not be used as a meat alternates?

1 Dry beans and peas
2 Eggs
3 Peanut butter
4 Pecans
5 Cream cheese

17. Which of the following is correct about the bread component?

1 Cereals must be whole grain, enriched, or fortified.
2 The bread served for lunch/supper must be complimentary to the main dish.
3 Bread/bread alternate must contain whole grain or enriched flour or meal as the predominant ingredient by weight as specified in label or according to the recipe.
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ADVANCED MENU PLANNING

1988

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   2 breads or cereals, fats
   3 fruit or vegetables, breads or cereals
   4 breads or cereals, meat or alternate
   5 fruit or vegetables, fats

3. Which of the following is a reimbursable milk component?

   1 yogurt
   2 vanilla pudding
   3 cottage cheese
   4 fluid milk
   5 nonfat dry milk

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2 fluid milk, meat/alternate, bread/alternate
3 cheese, fruit, roll
4 yogurt, vegetable, bread
5 fluid milk, fruit or vegetables, bread/alternate

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4 3/4 = .75
5 4/5 = .20

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1 milk
2 fish and poultry
3 eggs
4 whole grain cereals
5 all of the above are correct

Will you help us please? We're evaluating the **KITCHEN MATH AND FOOD PURCHASING WORKSHOP** you attended a few months ago. The purpose of this evaluation is to make the workshops as interesting and effective as possible. You can help by answering the following questions. The answers will assist the staff of the Nutrition Education and Training (NET) Program in making decisions about how the workshop can be improved. Please use the enclosed postage-paid envelope to return this form to us by **January 18, 1989**. Thanks!

SECTION I: Please CIRCLE the number that best describes how you feel about each of the following statements.

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
1. Calculating the amount of food needed for each menu item saves money...	1	2	3	4	5
2. It is a good idea to use a calculator when adjusting recipes to yield the number of servings needed...	1	2	3	4	5
3. Using standardized recipes can help save time and effort in food purchasing...	1	2	3	4	5
4. The **Food Buying Guide for Child Nutrition** is a valuable tool for food service personnel...	1	2	3	4	5
5. It is important for food service personnel to be able to calculate math problems with fractions and decimals...	1	2	3	4	5
6. Being able to work math problems helps you use the **Food Buying Guide**...	1	2	3	4	5
7. You should always consider using the proportion method for solving kitchen math problems...	1	2	3	4	5
8. I like calculating kitchen math problems...	1	2	3	4	5
9. Using decimals makes math calculations faster and easier...	1	2	3	4	5
10. The USDA Commodity Fact Sheets are good sources of recipes for using USDA donated commodities...	1	2	3	4	5
11. Using the **Food Buying Guide** can save time and effort in calculating amounts of food to purchase...	1	2	3	4	5
12. The NET Lending Library is a good source of recipes and information about food service management...	1	2	3	4	5

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SECTION II: Please CIRCLE the number that best describes how you felt BEFORE THE WORKSHOP about each of the following statements.

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
1. Calculating the amount of food needed for each menu item saves money...	1	2	3	4	5
2. It is a good idea to use a calculator when adjusting recipes to yield the number of servings needed...	1	2	3	4	5
3. Using standardized recipes can help save time and effort in food purchasing...	1	2	3	4	5
4. The **Food Buying Guide for Child Nutrition** is a valuable tool for food service personnel...	1	2	3	4	5
5. It is important for food service personnel to be able to calculate math problems with fractions and decimals...	1	2	3	4	5
6. Being able to work math problems helps you use the **Food Buying Guide**...	1	2	3	4	5
7. You should always consider using the proportion method for solving kitchen math problems...	1	2	3	4	5
8. I like calculating kitchen math problems...	1	2	3	4	5
9. Using decimals makes math calculations faster and easier...	1	2	3	4	5
10. The USDA Commodity Fact Sheets are good sources of recipes for using USDA donated commodities...	1	2	3	4	5
11. Using the **Food Buying Guide** can save time and effort in calculating amounts of food to purchase...	1	2	3	4	5
12. The NET Lending Library is a good source of recipes and information about food service management...	1	2	3	4	5

SECTION III: Please CIRCLE your answer to the following questions. DID YOU ATTEND:

1. the MENU PLANNING AND KITCHEN ECONOMY workshop in October?	1 yes	2 no
2. the ADVANCED MENU PLANNING workshop in November?	1 yes	2 no

THANK YOU!

Will you help us please? We're evaluating the MENU PLANNING AND KITCHEN ECONOMY workshop you attended a few months ago. Your answers to the following questions will help staff of the Texas Nutrition Education and Training (NET) Program decide how to improve the workshop to make it as interesting and effective as possible. Please use the enclosed postage-paid envelope to return the completed questionnaire to us by November 30. Thank you very much for attending the workshop and for helping us with this survey!

SECTION I: Please CIRCLE the number that best describes how you feel about each of the following statements.

		Strongly Disagree	Disagree	Unsure	Agree	Agree Strongly
1	Providers should understand basic nutrition principles...	1	2	3	4	5
2	Using cycle menus saves time...	1	2	3	4	5
3	The Food Buying Guide for Child Nutrition Programs is a very helpful menu planning guide...	1	2	3	4	5
4	If you know how to use the Food Buying Guide, you don't need to know the vitamin and mineral content of foods...	1	2	3	4	5
5	If providers serve enough food, there's no need to worry about iron in children's diets...	1	2	3	4	5
6	It's important to think about food components and correct quantities when planning menus...	1	2	3	4	5
7	The USDA meal pattern requirements are too complicated...	1	2	3	4	5
8	Using the Food Buying Guide is a waste of time...	1	2	3	4	5
9	It is important to plan menus to provide good sources of vitamin C and iron every day...	1	2	3	4	5
10	Providers should only serve reimbursable foods...	1	2	3	4	5
11	I like to keep up with new information about food and nutrition...	1	2	3	4	5
12	The NET Lending Library is a good source of information and guides for menu planning...	1	2	3	4	5
13	It is important to use and understand the Food Buying Guide...	1	2	3	4	5

SECTION II: The statements listed below are the same as the ones on page 1. In this section, please CIRCLE the number that best describes how you felt BEFORE the workshop.

		Strongly Disagree	Disagree	Unsure	Agree	Agree Strongly
1	Providers should understand basic nutrition principles...	1	2	3	4	5
2	Using cycle menus saves time...	1	2	3	4	5
3	The Food Buying Guide for Child Nutrition Programs is a very helpful menu planning guide...	1	2	3	4	5
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6	It's important to think about food components and correct quantities when planning menus...	1	2	3	4	5
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11	I like to keep up with new information about food and nutrition...	1	2	3	4	5
12	The NET Lending Library is a good source of information and guides for menu planning...	1	2	3	4	5
13	It is important to use and understand the Food Buying Guide...	1	2	3	4	5

THANK YOU!

Will you help us please? We're evaluating the ADVANCED MENU PLANNING workshop you attended a few months ago. Your answers to the following questions will help staff of the Nutrition Education and Training (NET) Program decide how to improve the workshop, so it is as interesting and effective as possible. Please use the enclosed postage-paid envelope to return the completed questionnaire to us by **March 17, 1989**. Thank you very much for helping us with this survey! Feel free to write additional comments on the back of these pages.

SECTION 1: Please CIRCLE the number that best describes how you feel about each of the following statements.

		Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	It is important for providers to understand federal guidelines about food components and correct quantities...	1	2	3	4	5
2	The Food Buying Guide for Child Nutrition Programs helps providers decide whether a food is an allowable component...	1	2	3	4	5
3	Following meal patterns in the Food Buying Guide is a good way to make sure that children get enough right kinds of food...	1	2	3	4	5
4	There's no reason why providers should have to complete their menu records every single day...	1	2	3	4	5
5	The meal pattern requirements are a waste of time because children just naturally choose the foods their bodies really need...	1	2	3	4	5
6	Providers should read the ingredients label on a package of processed food before buying it...	1	2	3	4	5
7	Cycle menus are helpful when calculating amounts of food to purchase and prepare...	1	2	3	4	5
8	It is important for providers to complete menu records correctly and completely...	1	2	3	4	5
9	The Food Buying Guide is too difficult for most providers to use when planning menus...	1	2	3	4	5
10	It is unreasonable to expect most providers to use fractions and decimals in calculating amounts of food to purchase...	1	2	3	4	5
11	It is very important for providers to use and understand the Food Buying Guide...	1	2	3	4	5
12	The NET Lending Library is a good source of information and guides for menu planning...	1	2	3	4	5

SECTION 2: The statements below are the same as on page 1. In this section, please CIRCLE the number that best describes how you felt BEFORE the workshop.

		Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	It is important for providers to understand federal guidelines about food components and correct quantities...	1	2	3	4	5
2	The Food Buying Guide for Child Nutrition Programs helps providers decide whether a food is an allowable component...	1	2	3	4	5
3	Following meal patterns in the Food Buying Guide is a good way to make sure that children get enough right kinds of food...	1	2	3	4	5
4	There's no reason why providers should have to complete their menu records every single day...	1	2	3	4	5
5	The meal pattern requirements are a waste of time because children just naturally choose the foods their bodies really need...	1	2	3	4	5
6	Providers should read the ingredients label on a package of processed food before buying it...	1	2	3	4	5
7	Cycle menus are helpful when calculating amounts of food to purchase and prepare...	1	2	3	4	5
8	It is important for providers to complete menu records correctly and completely...	1	2	3	4	5
9	The Food Buying Guide is too difficult for most providers to use when planning menus...	1	2	3	4	5
10	It is unreasonable to expect most providers to use fractions and decimals in calculating amounts of food to purchase...	1	2	3	4	5
11	It is very important for providers to use and understand the Food Buying Guide...	1	2	3	4	5
12	The NET Lending Library is a good source of information and guides for menu planning...	1	2	3	4	5

SECTION 3: During 1988, did you attend the following NET workshops?

1	Kitchen Math and Food Purchasing	Yes	No
2	Menu Planning and Kitchen Economy	Yes	No

STAFF DEVELOPMENT AND TRAINING REPORT
SESSION INFORMATION

S.O. USE		EDUCATIONAL PACKET NO.				S.O. USE	DATES OF SESSION					
SESSION NO.							Beain Date			End Date		
Month	Series	Source	Target Group	Fiscal Yr.	Series	Module	Mo.	Day	Yr.	Mo.	Day	Yr.

Educational Packet Title	Content Taught By	Region

INSTRUCTIONS: For each item listed below, please CIRCLE the most appropriate number to reflect your evaluation.

6 ITEM	EVALUATION 1 Not At All	2 Some-what	3 Well	4 Very Well	COMMENTS
1. Objectives were communicated:	1	2	3	4	
2. Instructor's presentation and manner helped you to meet the objectives:	1	2	3	4	
3. Instructor provided opportunity for discussion, comments, and questions:	1	2	3	4	
4. Course content helped you to meet the objectives:	1	2	3	4	
5. Handouts, audio-visuals, etc., helped you to meet the learning objectives:	1	2	3	4	

6. What part(s) of the session will be most helpful to you in doing your job?

7. What part(s) of the session will be least helpful to you in doing your job?

8. What suggestions do you have for improving this session?

Texas Department of Human Services

Form 1530
March 1981

Name of Center or Day Home

Agreement No.

Date

DAILY MENU RECORD

1. MEALS	2. MENU	3. FOOD ITEMS USED	4. AMOUNT PREPARED	5. NUMBER SERVED							
				Infants - Ages (months)			Children - Ages (years)			Program Adults	Non-prog Adults
				0–3	4–7	8–11	1–2	3–5	6 up		
BREAKFAST											
1 Milk											
2 Fruit or Juice				NUMBER OF COMPLETE SECONDS SERVED							
3 Whole Grain or Enriched Bread or Bread Alternate											
AM SNACK											
CHOOSE 2 OF THE FOLLOWING											
1 Milk											
2 Vegetable(s) and/or Fruit(s)				NUMBER OF COMPLETE SECONDS SERVED							
3 Whole Grain or Enriched Bread or Bread Alternate											
4 Meat or Meat Alternate											
LUNCH											
1 Milk											
2 Meat or Meat Alternate				NUMBER OF COMPLETE SECONDS SERVED							
3 Vegetables and/or Fruits (2 or more)											
4 Whole Grain or Enriched Bread or Bread Alternate											
5 Other Foods											

(cont. on back)

	1 MEALS	2 MENU	3 FOOD ITEMS USED	4 AMOUNT PREPARED	5 NUMBER SERVED							
					Infants - Ages (months):			Children - Ages (years):			Program Adults	Non-prog Adults
					0–3	4–7	8–11	1–2	3–5	6 up		
PM SNACK	CHOOSE 2 OF THE FOLLOWING 1 Milk (fluid) 2 Vegetable(s) and/or Fruit(s) 3 Whole Grain or Enriched Bread or Bread Alternate 4 Meat or Meat Alternate											
					NUMBER OF COMPLETE SECONDS SERVED							
DINNER	1 Milk 2 Meat or Meat Alternate 3 Vegetables and/or Fruits (2 or more) 4 Whole Grain or Enriched Bread or Bread Alternate 5 Other Foods											
					NUMBER OF COMPLETE SECONDS SERVED							

APPENDIX B:

FIGURES AND SUMMARY TABLES OF STATISTICAL DATA

Table 1
Summary Table for the Analysis of Variance on Kitchen Math Knowledge Test Scores (Pretest, Posttest, Follow-up Test)

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	783.8014	46	17.0392	
Within People	1050.0000	94	11.1702	
Between Measures	373.8865	2	186.9433	25.4377***
Residual	676.1135	92	7.3491	
TOTAL	1833.8014	140	13.0986	

*** p<.001

Figure 1

Percentages of Respondents Achieving "Acceptable" or "Ideal" Scores on the Kitchen Math Knowledge Test

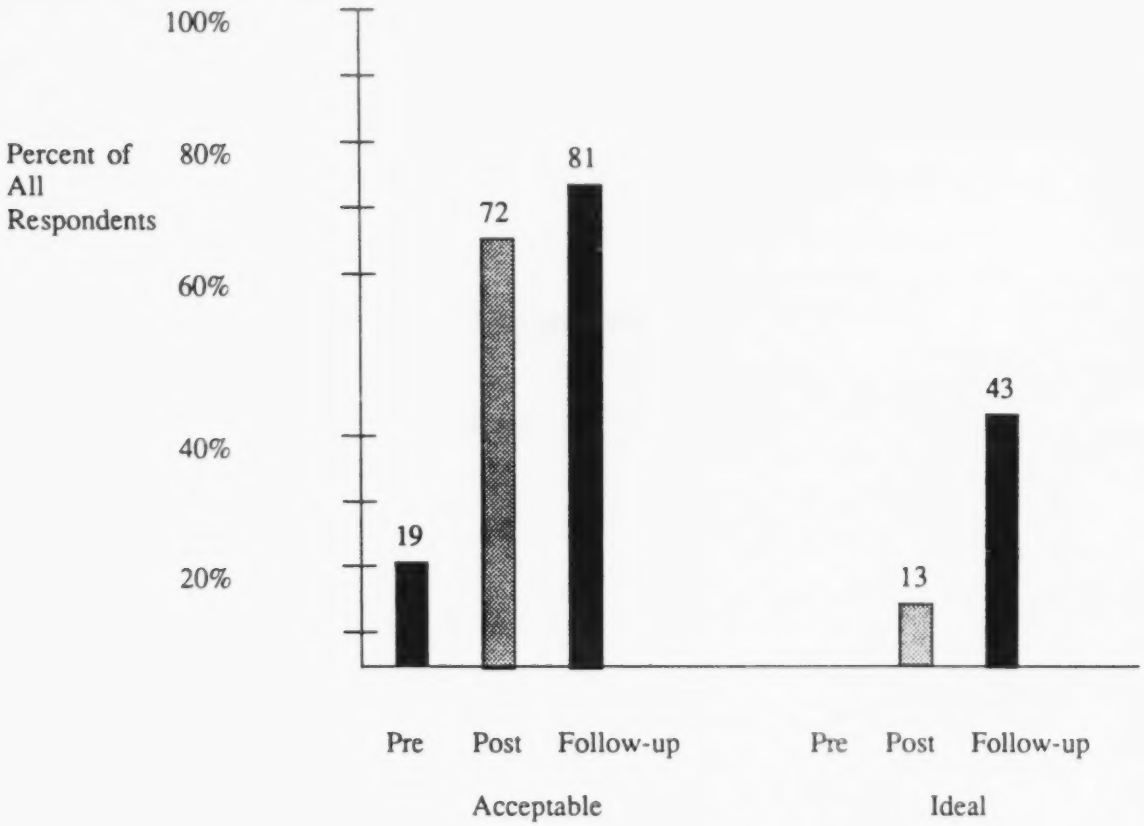

Table 2
A Comparison of Average Pre-, Post-, and Follow-up Menu Planning Test Scores for all Workshops and for Selected Workshops with Either More than 50 Percent or Fewer than 20 Percent Hispanic Participants

	Total Group	Selected workshops with more than 50% Hispanic participants	Selected workshops with fewer than 20% Hispanic participants
Pretest average	4.973 (N=332)	8.068 (N=44)	2.827 (N=52)
Posttest average	4.985 (N=328)	4.209 (N=43)	10.917 (N=48)
Follow-up test average	7.123 (N=81)	4.375 (N=8)	5.000 (N=7)
	∝=.81	∝=.81	∝=.88

Table 3
Summary Table for the Analysis of Variance on Menu Planning Knowledge Test Scores (Pretest, Posttest, Follow-up Test)

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	630.1921	58	10.8654	
Within People	2371.3333	118	20.0960	
Between Measures	164.8814	2	82.4407	4.3342*
Residual	2206.4520	116	19.0211	
TOTAL	3001.5254	176	17.0541	

* $p<.05$

Table 4
Summary Table for the Analysis of Variance on CCFP Participants' Scores on the Menu Planning Knowledge Tests (Pretest, Posttest, Follow-up Test)

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	102.3205	25	4.0928	
Within People	1352.6667	52	26.0128	
Between Measures	196.4872	2	98.2436	4.2486*
Residual	1156.1795	50	23.1236	
TOTAL	1454.9872	77	18.8959	

* $p<.05$

Figure 2
Percentages of All Respondents Who Met Criteria For "Acceptable" and "Ideal" Performance On the Menu Planning Knowledge Test

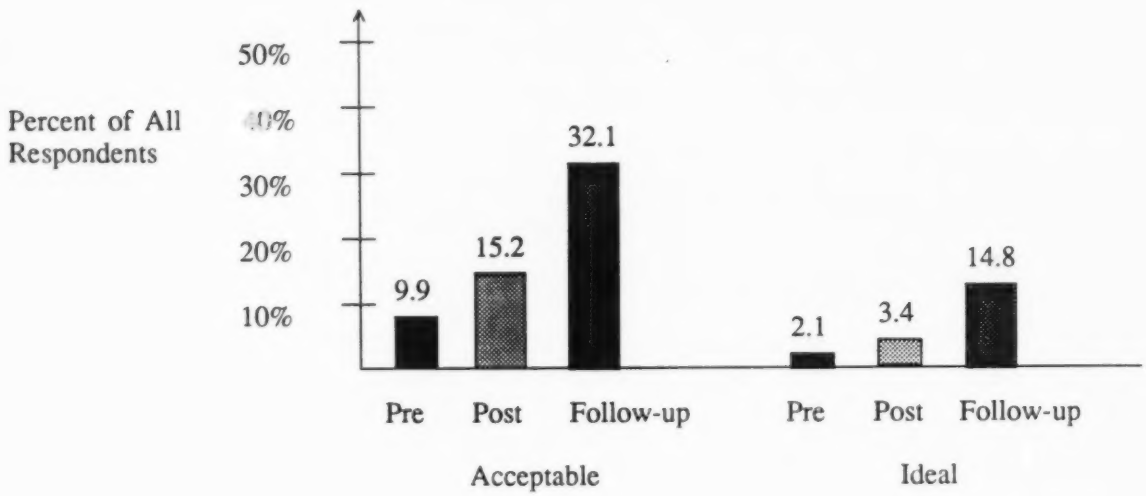

Figure 3
Percentages of CCFP Respondents Who Met Criteria for "Acceptable" and "Ideal" Performance on the Menu Planning Knowledge Test

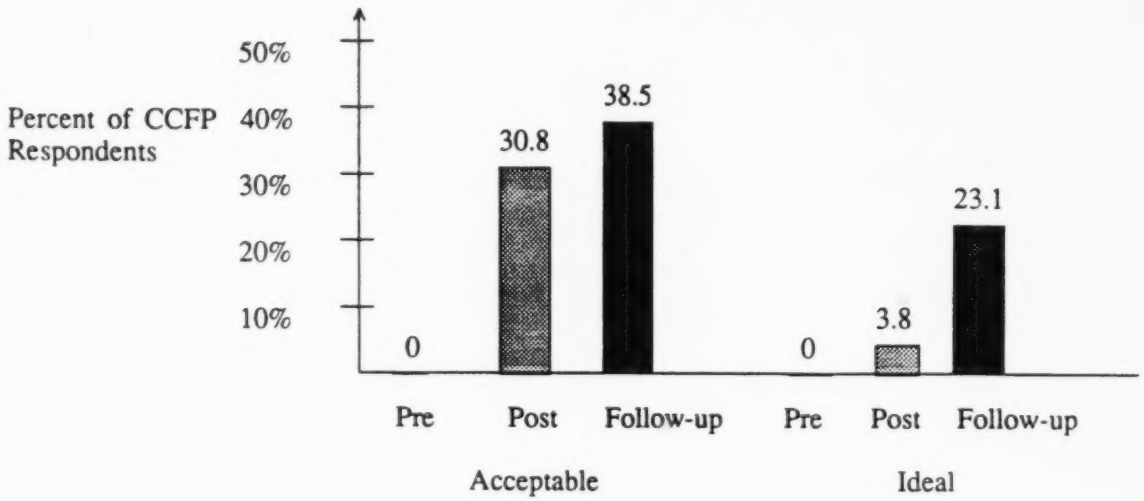

Figure 4
Percentages of NSLP Respondents Who Met Criteria for "Acceptable" and "Ideal" Performance on the Menu Planning Knowledge Test

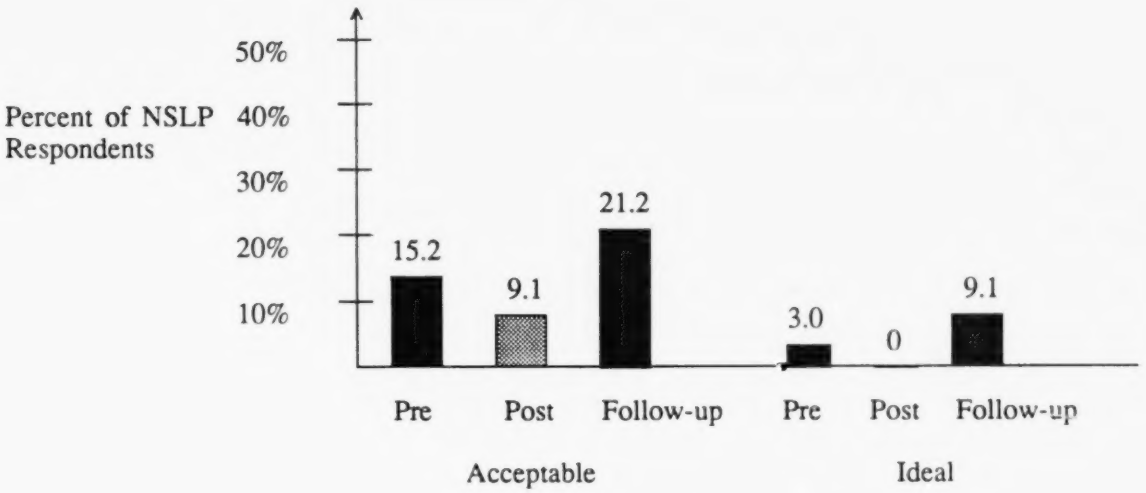

Table 5
Summary of the Analysis of Variance on
Advanced Menu Planning Knowledge Test Scores
(Pretest, Posttest, Follow-up Test)

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	1585.2560	68	23.3126	
Within People	878.0000	138	6.3623	
Between Measures	242.9082	2	121.4541	26.0085***
Residual	635.0918	136	4.6698	
TOTAL	2463.2560	206	11.9576	

*** $p<.001$

Figure 5
Graph of Advanced Menu Planning Knowledge
Test Scores Over Time and by Group

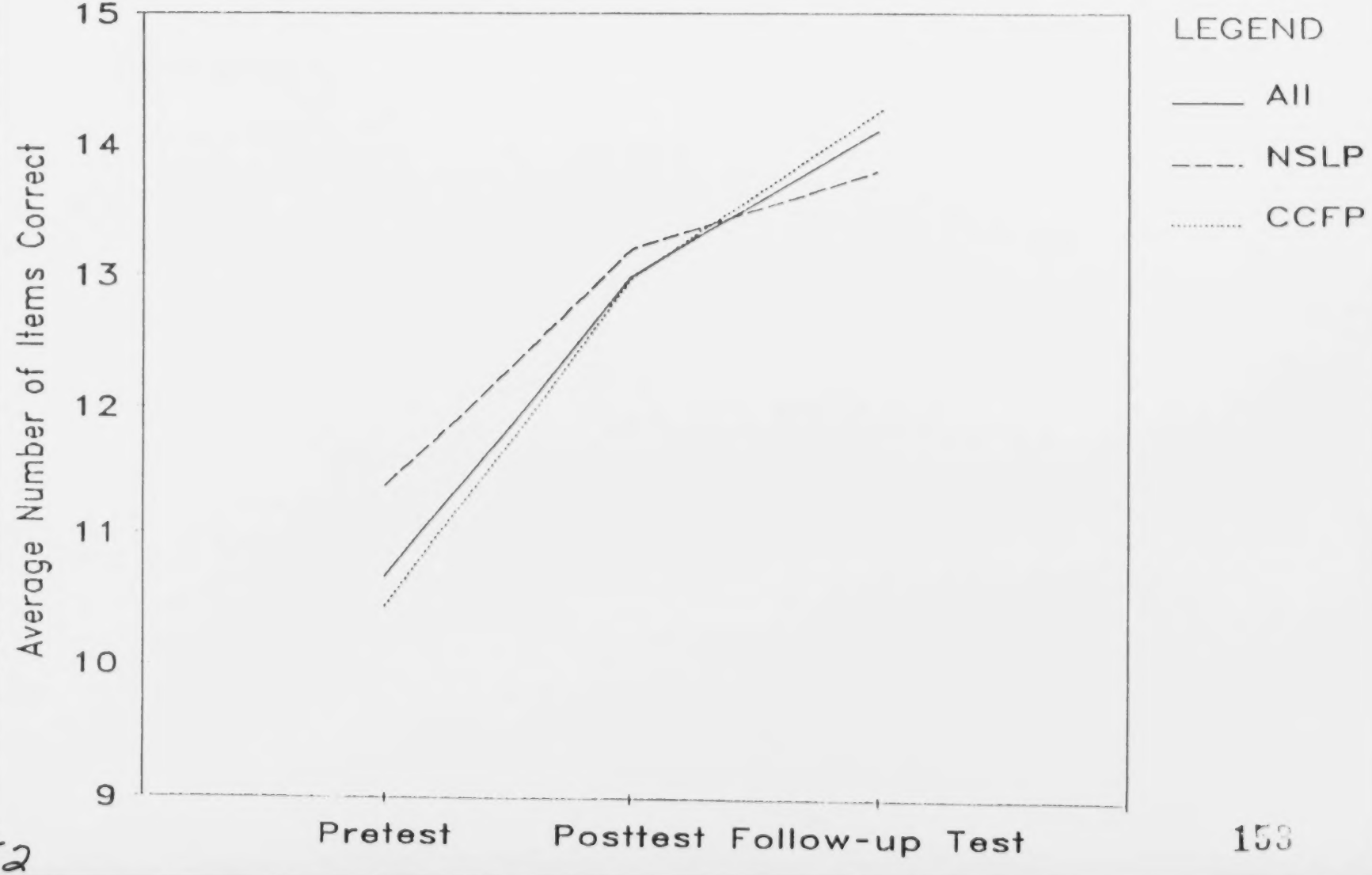

Table 6
Summary of the Analysis of Variance for Advanced Menu Planning Knowledge Test Scores From the NSLP Group Only (Pretest, Posttest, Follow-up Test)

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	329.1282	25	13.1651	
Within People	260.6667	52	5.0128	
Between Measures	56.6410	2	28.3205	6.9404**
Residual	204.0256	50	4.0805	
TOTAL	589.7949	77	7.6597	

** p<.01

Table 7
Summary of the Analysis of Variance for Advanced Menu Planning Test Scores From the CCFP Group Only (Pretest, Posttest, Follow-up Test)

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	1238.6357	42	29.4913	
Within People	617.3333	86	7.1783	
Between Measures	206.1550	2	103.0775	21.0578***
Residual	411.1783	84	4.8950	
TOTAL	1855.9690	128	14.4998	

*** p<.001

Figure 6

Percentages of Workshop Participants Achieving "Acceptable" and "Ideal" Scores on the Advanced Menu Planning Knowledge Test

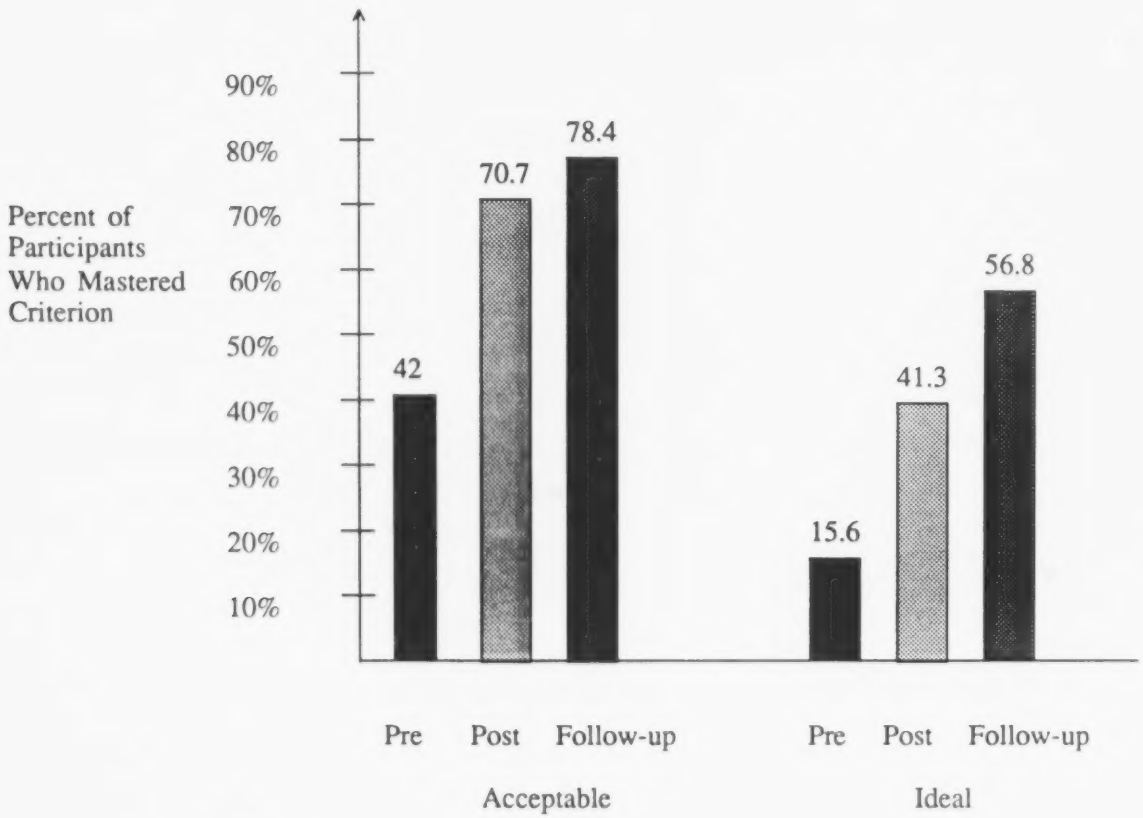

Figure 7

Percentages of NSLP Participants Achieving "Acceptable" and "Ideal" Performance Levels on the Advanced Menu Planning Knowledge Test

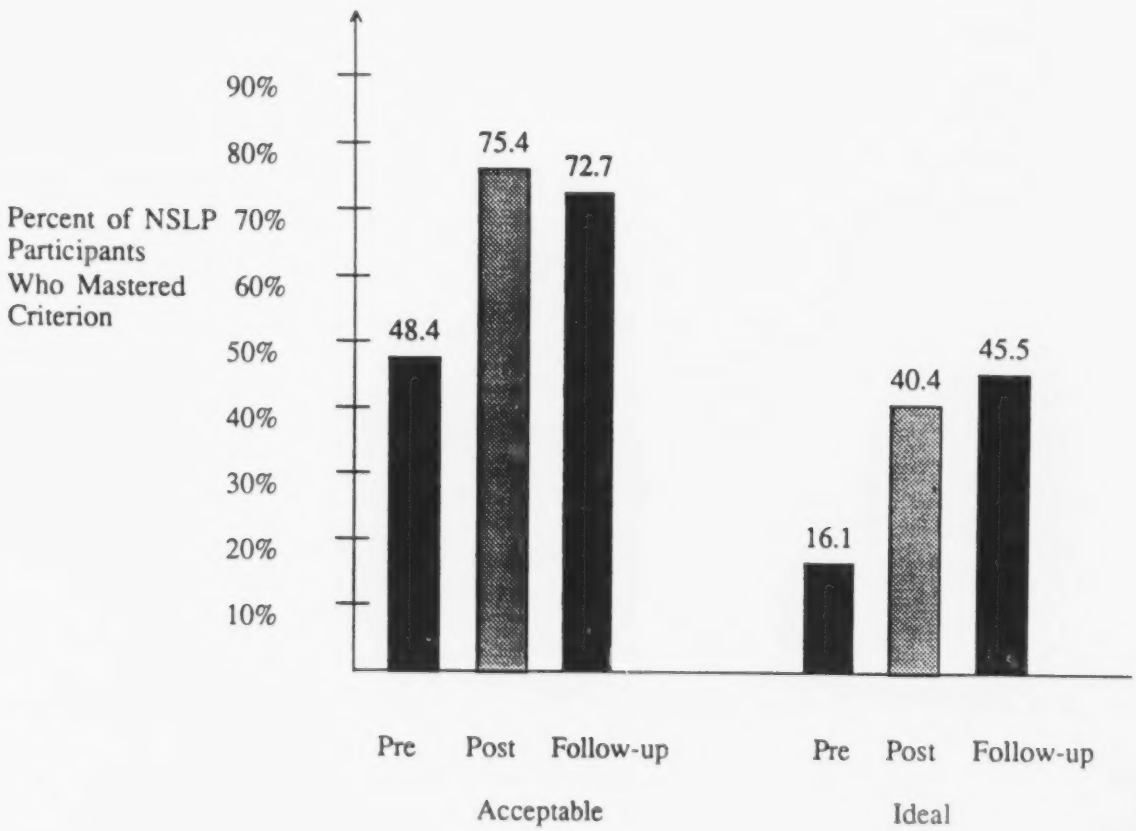

Figure 8

Percentages of CCFP Participants Achieving "Acceptable" and "Ideal" Performance Levels on the Advanced Menu Planning Knowledge Test

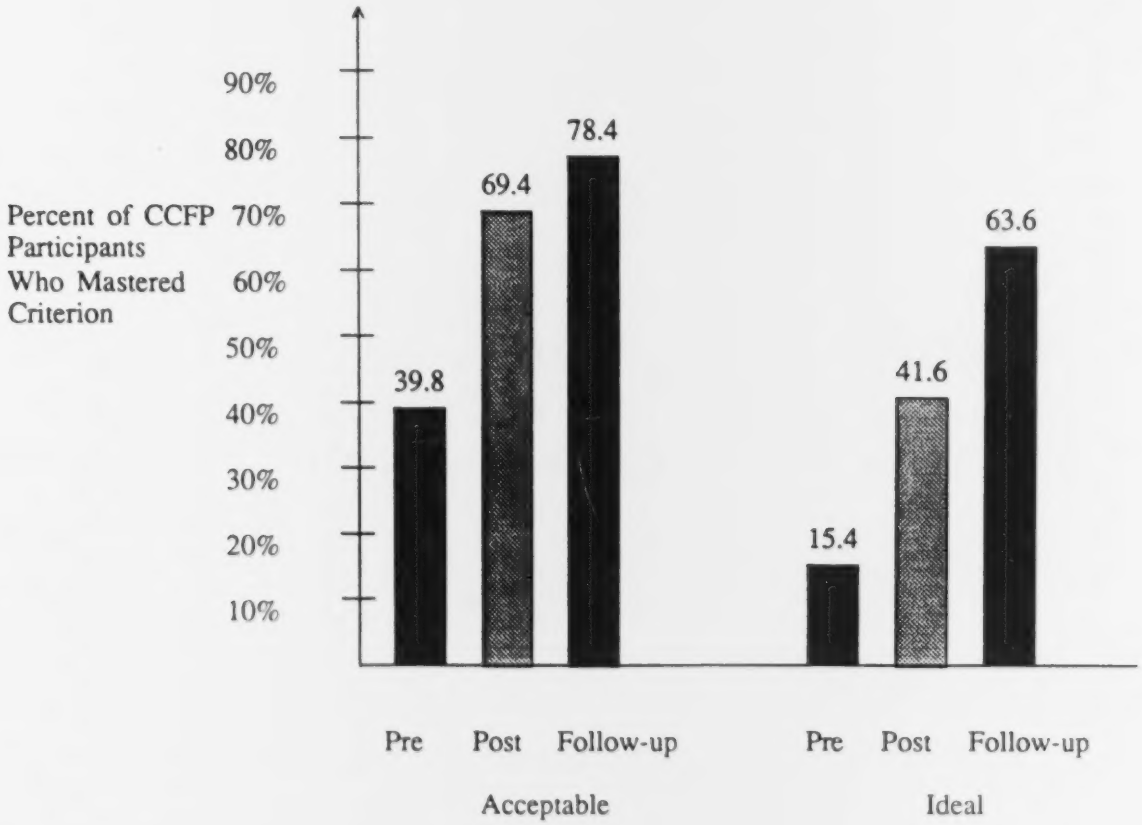

Table 8
Summary of the Analysis of Variance
on Kitchen Math Attitude Scale Scores

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	2609.2041	48	54.3584	
Within People	795.0000	49	16.2245	
Between Measures	281.1837	1	281.1837	26.2678***
Residual	513.8163	48	10.7045	
TOTAL	3404.2041	97	35.0949	

*** p<.001

Figure 9

Percentages of Respondents Making "Acceptable" or "Ideal" Ratings on the Kitchen Math Attitude Scale

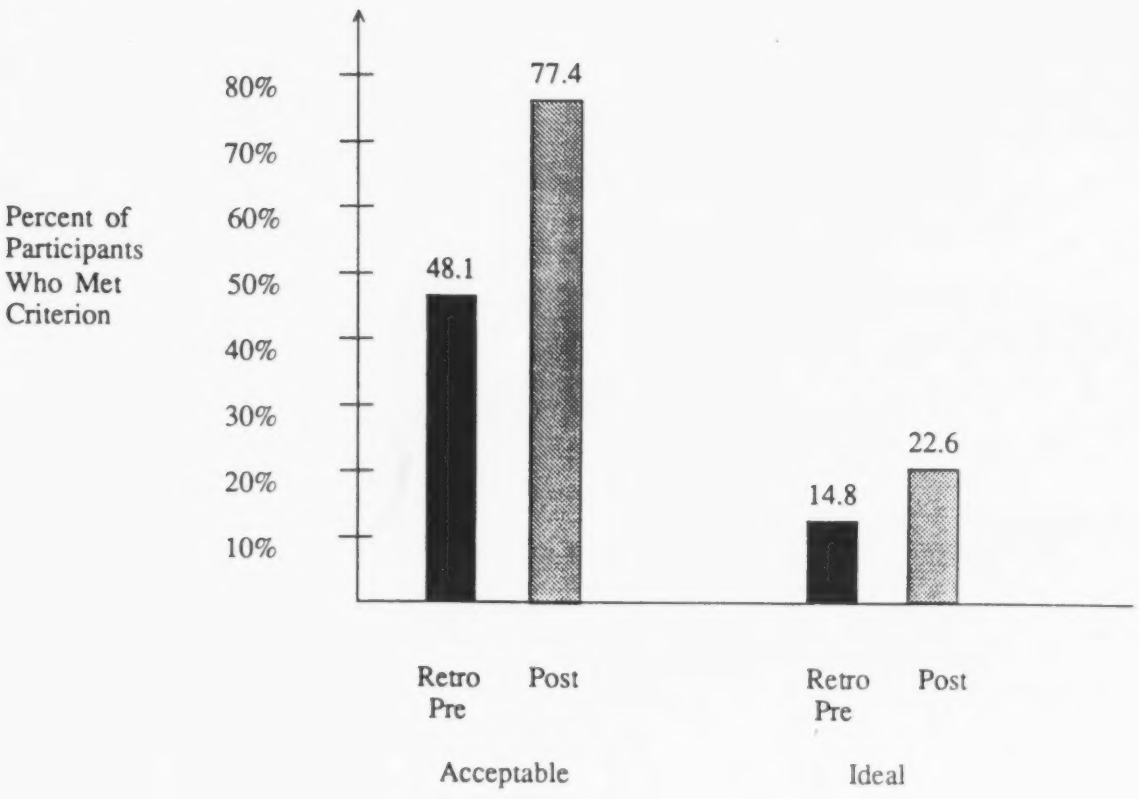

Table 9
Summary of the Analysis of Variance on
All Menu Planning Attitude Scale Scores

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	2408.9762	83	29.0238	
Within People	1617.0000	84	19.2500	
Between Measures	473.3571	1	473.3571	34.3539***
Residual	1143.6429	83	13.7788	
TOTAL	4025.9762	167	24.1076	

*** p<.001

Figure 10

Percentages of All Respondents Making "Acceptable" or "Ideal" Ratings on the Menu Planning Attitude Scale

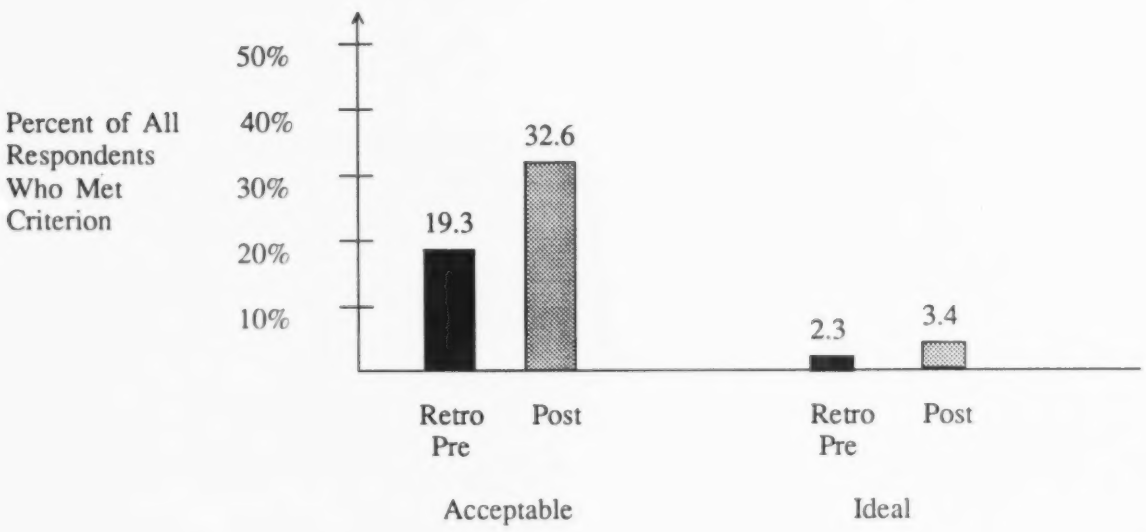

Table 10
Summary of the Analysis of Variance on NSLP Respondents' Scores on the Menu Planning Attitude Scale

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	1432.9556	44	32.5672	
Within People	1035.0000	45	23.0000	
Between Measures	537.7778	1	537.7778	47.5888***
Residual	497.2222	44	11.3005	
TOTAL	2467.9556	89	27.7298	

*** p<.001

Table 11
Summary of the Analysis of Variance on CCFP Respondents' Scores on the Menu Planning Attitude Scale

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	975.1795	38	25.6626	
Within People	582.0000	39	14.9231	
Between Measures	49.2821	1	49.2821	3.5154+
Residual	532.7179	38	14.0189	
TOTAL	1557.1795	77	20.2231	

+ p<.07

Table 12
Summary of the Analysis of Variance
on All Advanced Menu Planning Scale Scores

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	4024.9931	71	56.6900	
Within People	1422.5000	72	19.7569	
Between Measures	339.1736	1	339.1736	22.2291***
Residual	1083.3264	71	15.2581	
TOTAL	5447.4931	143	38.0944	

*** p<.001

Table 13
Summary of the Analysis of Variance
on CCFP Respondents' Scores on the
Advanced Menu Planning Attitude Scale

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	2757.7949	38	72.5735	
Within People	576.0000	39	14.7692	
Between Measures	103.8462	1	103.8462	8.3578**
Residual	472.1538	38	12.4251	
TOTAL	3333.7649	77	43.2960	

** p<.01

Table 14
Summary of the Analysis of Variance on NSLP Respondents' Scores on the Advanced Menu Planning Attitude Scale

Source of Variation	Sum of Squares	df	Mean Square	F
Between People	1260.0000	32	39.3750	
Within People	846.5000	33	25.6515	
Between Measures	260.0152	1	260.0152	14.1870***
Residual	586.4848	32	18.3277	
TOTAL	2106.5000	65	32.4077	

*** p<.001

Figure 11

Percentages of Respondents Making "Acceptable" or "Ideal" Ratings on the Advanced Menu Planning Attitude Scale

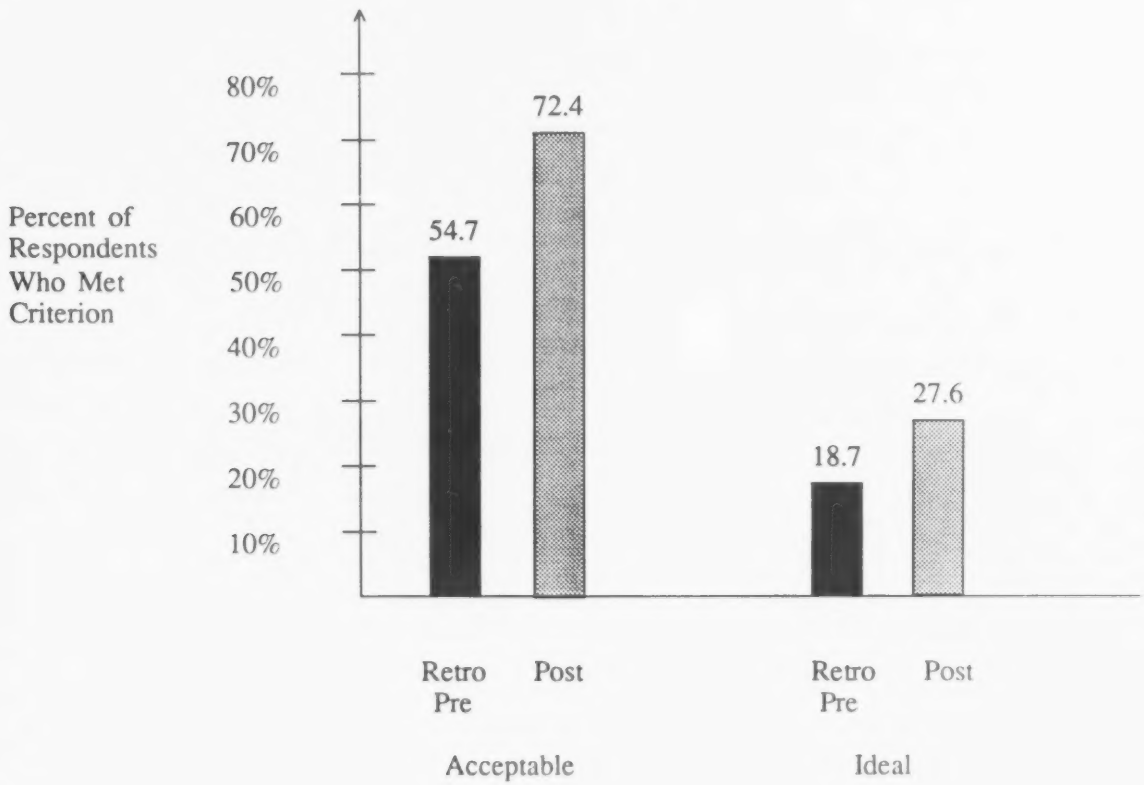

Table 15
Summary of the One-way Analysis of Variance Comparing Satisfaction (Form 4316) Data from CCFP and NSLP Participants in the Menu Planning Workshop

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	38.3205	1	38.3205	11.9298***
Within Groups	841.5848	262	3.2122	
TOTAL	879.9053	263		

*** p<.001

Table 16
Summary of the One-way Analysis of Variance Comparing Favorability Ratings for CCFP and NSLP Participants' Comments Regarding the Menu Planning Workshop

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	19.7676	1	19.7676	49.4057***
Within Groups	107.2287	268	.4001	
TOTAL	126.9963	269		

*** p<.001

Table 17
Summary of the One-way Analysis of Variance Comparing Satisfaction (Form 4316) Data from CCFP and NSLP Participants in the Advanced Menu Planning Workshop

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	18.9570	1	18.9570	4.8649*
Within Groups	1052.1018	270	3.8967	
TOTAL	1071.0588	271		

* p<.05

Table 18
Summary of the One-way Analysis of Variance Comparing Favorability Ratings for CCFP and NSLP Participants' Comments Regarding the Advanced Menu Planning Workshop

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	8.5337	1	8.5337	13.4938***
Within Groups	179.6061	284	.6324	
TOTAL	188.1399	285		

*** p<.001

Table 19
Average Utility Scores for Kilocalories, Leader Nutrients, and Percentage of Calories from Fat and Carbohydrates for Treatment and Comparison Groups Over Time

		UTILITY SCORES					
		Before		After		3 Months After	
		Work-shop	Comp-arison	Work-shop	Comp-arison	Work-shop	Comp-arison
	KILOCALORIES*	72.1	69.8	80.4	70.3	64.4	64.6
LEADER NUTRIENTS	PROTEIN	170.7	167.2	164.8	169.7	162.8	161.9
	CALCIUM	137.5	138.3	136.8	137.2	148.9	139.4
	IRON*	65.1	64.7	58.1	63.3	51.6	55.9
	VITAMIN A	183.8	188.5	162.3	168.7	139.8	149.1
	VITAMIN C	146.2	136.3	152.6	131.8	112.4	110.7
	THIAMIN*	85.9	85.0	83.9	84.4	76.9	79.7
	RIBOFLAVIN	169.6	163.4	166.4	162.3	171.8	163.0
	NIACIN*	68.0	63.8	64.2	63.4	52.9	55.3
CALORIES FROM FAT**		132.7	129.9	124.0	128.2	135.6	132.7
CALORIES FROM CARBOHYDRATES***		75.5	76.3	79.8	76.5	70.9	73.1

*Utility scores below 100% mean that less than 66.67% USDA RDAs were provided by the breakfast, lunch, and snacktime meals recorded on forms 1530.

**These figures show how far above the target, of 30% calories from fat, children's diets would be given standard portions of foods listed on the centers' forms 1530.

***These figures show how close to the target, of 58% calories from carbohydrates, children's diets would be given standard portions of foods listed on the centers' forms 1530.

Table 20
Utility Scores for Kilocalories, Leader Nutrients and Percentage of Calories from Fat and Carbohydrates Across All Centers Over Time

		UTILITY SCORES*		
		Before	After	3 Months After
	KILOCALORIES	70.9	74.8	64.5
LEADER NUTRIENTS	PROTEIN	168.8	167.5	162.3
	CALCIUM	137.9	137.0	143.6
	IRON	64.9	61.0	54.0
	VITAMIN A	186.3	165.9	144.9
	VITAMIN C	140.8	141.1	111.4
	THIAMIN	85.4	84.2	78.4
	RIBOFLAVIN	166.2	164.1	167.0
	NIACIN	65.7	63.8	54.2
CALORIES FROM FAT**		131.2	126.3	134.0
CALORIES FROM CARBOHYDRATES***		76.0	78.0	72.1

*These represent how much, out of 66.67% RDA, of a nutrient would be obtained given standard portions of foods listed on centers' forms 1530.

**These figures show how far above the target, of 30% calories from fat, children's diets would be given standard portions of foods listed on the centers' forms 1530.

***These figures show how close to the target, of 58% calories from carbohydrates, children's diets would be given standard portions of foods listed on the centers' forms 1530.

Table 21

Average Meal Pattern Compliance Scores for Workshop and Comparison Groups Over Time

Meal Pattern Scores	Group	Before Treatment	After Treatment	Follow up
Were components present? (Max = 4.0)	C*	3.83	3.80	3.78
	W**	3.86	3.83	3.87
Were allowable foods used? (Max = 4.0)	C	3.75	3.74	3.72
	W	3.78	3.76	3.82
Were foods fully described? (Max = 4.0)	C	3.54	3.54	3.52
	W	3.68	3.66	3.70
Was enough of each component served? (Max = 4.0)	C	2.17	2.03	1.99
	W	2.58	2.46	2.64
Overall Pattern Score (Max = 16.00)	C	13.29	13.11	13.01
	W	13.91	13.71	14.03

*C = Comparison Group
**W = Workshop Group

APPENDIX C

EFFECTIVENESS OF NUTRITION EDUCATION AND TRAINING (NET) WORKSHOPS FOR DAY HOME SPONSORS

November 1989

Maria D. Whitsett
NET Program Evaluator
Texas Department of Human Services
P. O. Box 149030
Austin, Texas 78714-9030
(512) 450-3041

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EXECUTIVE SUMMARY

BACKGROUND

The Texas Nutrition Education and Training (NET) program is the only educational component of the United States Department of Agriculture's (USDA's) Child Nutrition Programs (CNP); the others are reimbursement programs. In response to the legislatively mandated annual evaluation of NET activities, new workshops are assessed against USDA's KABINS model, which holds that changes in knowledge (K) will lead to changes in attitudes (A), in turn leading to changes in behaviors (B) that will improve children's nutritional status (INS).

PURPOSE

This study was completed to assess the effectiveness of a new NET workshop series for day home sponsors, in terms of improved participant child-nutrition-related knowledge and attitudes. Participant satisfaction with the new curricula also was assessed.

PROCEDURES

Knowledge tests were administered before and after the training sessions. A three-month follow-up knowledge test also was administered. Retrospective pre- and posttests of participant attitudes were administered three months after each session. The final data source, on satisfaction, was obtained at the conclusion of each training session when participants rated the sessions on a standard training evaluation form.

RESULTS

Repeated-measures analyses of variance revealed that the first workshop led to improved participant attitudes, though it failed to significantly increase knowledge of meal pattern requirements. Item-level data indicated that the latter finding may have been more reflective of test difficulty than it was of a potential weakness in training. For the second workshop, a reverse pattern held true: attitudes failed to change significantly but knowledge was substantially improved. Participants reported adequate levels of satisfaction with both sessions, although it was higher for the second session than the first.

CONCLUSIONS

Seven out of ten statistical or criterion-referenced analyses showed the workshop series for day home sponsors to have the desired effects upon participants. It was suggested that the knowledge test for the first workshop be re-examined for its fidelity of match to the curriculum and for lowering its readability. Additional suggestions were made for strengthening the curricula and for reinforcing what was learned by providing various follow-up activities for day home sponsors.

BACKGROUND AND PURPOSE

The Child Nutrition Programs (CNP) were implemented by federal legislation almost 25 years ago for the purpose of protecting and improving the health of children in the United States, by ensuring opportunities to practice good eating habits. Administered by the United States Department of Agriculture (USDA) and recently reauthorized by Congress, the CNP now are comprised of two types of programs, those designed to reimburse public or private schools and child care centers for serving children nutritious meals and snacks, and one--the Nutrition Education and Training (NET) program--designed to teach children, food service workers, and educators in those settings about nutritious eating habits. Use of this dual approach is intended to better achieve the goal of permanently improving children's nutritional status.

The Texas NET program has been administered by the Texas Department of Human Services (DHS) since 1982, when the state education agency relinquished its involvement. Since 1988, DHS has submitted two-year state plans (with amendments filed at the start of the second year) detailing all activities designed to achieve the program's goals and objectives.

One of the four main goals identified in NET's most recent two-year plan is the following:

> **Develop and conduct workshops**, maintain and promote use of lending library services, and acquire and distribute instructional materials and job aids that enhance nutrition education and food service management practices in schools and child care facilities participating in the Child Nutrition Programs.

Pursuant to that goal, NET staff have developed and validated a total of 13 workshop curricula.

New workshops have traditionally been evaluated against USDA's KABINS model, which holds that changes in knowledge (K) will lead to changes in attitudes (A), in turn leading to changes in behaviors (B) that will improve children's nutritional status (INS). The vast majority of NET's workshops have been found highly effective in producing desired change (see, for example, the report by Roberts-Gray, 1988) except in the domain of behaviors, where success has been more elusive.

In order to increase the likelihood of program success in all three domains (knowledge, attitudes, and behaviors), NET staff chose to intervene at another level in the CNP system: sponsors of licensed family day homes. Heretofore this group had not been specifically targeted by NET, yet as of this year the sponsors became legally responsible for giving technical assistance to family day home providers. So as to assure that both providers and sponsors would have similar information, and because sponsors had not previously been targeted by NET workshops, the program staff decided to develop a new workshop series specifically for day home sponsors.

Part one of the series focused on the CNP meal pattern requirements applicable to family day homes. Part two was developed in response to participant suggestions and needs after the first session, and it focused on the two topics of leader nutrients and the NET lending library. Part three has not yet been developed, but has tentatively been slated for delivery in 1990. Therefore, only the first two parts have been evaluated for effectiveness.

This report presents findings about effectiveness of the "Meal Pattern Requirements for Day Home Sponsors" and "Leader Nutrients/NET Lending Library" sessions in improving participants' knowledge and attitudes. Cost and time factors made it impossible to incorporate any assessment of behavioral outcomes into this study. Specifically, the following evaluation questions were addressed:

- Did participants' child-nutrition-related knowledge, as measured by pencil-and-paper tests, improve as a result of having attended the workshop sessions?

- Were there particular content areas that proved especially easy or difficult for participants to master?

- Did participants' child-nutrition-related attitudes improve after having attended the two workshop sessions?

- Were participants generally satisfied with the training they received?

PROCEDURES

Letters were sent to all CNP sponsors of registered family day homes in the state (N = approximately 70) inviting them to attend the workshop series in Austin. There were 68 sponsors registered to attend the first session, held in February 1989, and 53 registered for the second one, held in July 1989. All those actually in attendance were asked to complete all of the instruments used to evaluate the sessions.

For the first session, matched sets of pre-, post-, and follow-up knowledge test data were available for 19 participants; retrospective pre- and posttest attitude scores were available for 30; and 48 participants furnished data about their satisfaction. For the second session, matched sets of pre-, post-, and follow-up knowledge test data were available for 13 participants; attitude data were available for 20; and 43 furnished data about their satisfaction with the training.

DESCRIPTION OF INTERVENTION

Both workshops for day home sponsors were held in Austin at the Winters office complex, and were conducted by the same nutritionist under contract to the NET program.

Each workshop was designed to include learner activities in multiple modalities; that is, listening, speaking, reading, writing, and viewing audio-visual materials were used to maximize participant engagement in the learning process. The first workshop, "Meal Pattern Requirements," was a full-day session, so mid-morning, lunch, and mid-afternoon breaks were included on the agenda to help keep participants comfortable and alert. The second workshop only included breaks at mid-morning and the noon hour.

Specific learning objectives were established for each workshop in the series. Participants were made aware of these both orally and in writing, as copies of the objectives were featured prominently in their packets of hand-out materials. Three training objectives were targeted by the "Meal Pattern Requirements" workshop (p. iii of the hand-out guide):

- Given a review of the "Food Buying Guide for Child Nutrition Programs," participants will know how to determine if foods and beverages are reimbursable.

- Given a review of the Child Nutrition Program meal pattern regulations and nutrition labeling, participants will be able to distinguish between reimbursable and non-reimbursable food and beverage items.

- Given a review of how CCFP meal patterns are determined, and basic menu planning techniques, participants will be prepared to plan menus and/or give technical assistance to their providers on menu planning.

Additional learning objectives were specified in the hand-out materials for the "Leader Nutrients/NET Lending Library" workshop. They were (p. v of the hand-out guide):

- Given a review of specific leader nutrients, Dietary Guidelines for Americans, RDAs, and water/fluid intake, participants will be able to identify good sources of the specific leader nutrients and to use the guidelines in planning nutritious menus.

- Given instructions on how to order materials from the Nutrition Education and Training Program's lending library collection, participants will know how to complete the forms correctly in order to obtain materials to use in their day homes.

INSTRUMENTATION

Copies of all instruments used to complete this study are located in Appendix A. Each one is described in the following sections.

Knowledge Tests

Each multiple-choice knowledge test was comprised of 15 items that presented four distractors and one correct choice. The two

knowledge tests, one for "Meal Pattern Requirements" and one for "Leader Nutrients/NET Lending Library," were available in three forms each. Forms were distinguished only by the order of presentation of the 15 items. To avoid possible confounding of changes over time with changes in the test form used, at each assessment approximately one-third of the participants received form 1, another third received form 2, and the remainder form 3.

Because no pilot testing of the instruments was completed, data about test characteristics were not available until the conclusion of this study. A content-specifications table was used to help assure that the tests possessed adequate content validity--in other words, that the items on the tests appropriately reflected the topics covered in the workshops and the relative emphasis given to each. Finally, readability of each instrument was checked by using Frye's method, such that all were judged to be at about the ninth- to tenth-grade reading level.

Attitude Scales

Two attitude scales composed of 5-point, Likert-type items were employed to assess changes in participants' attitudes over time. The "Meal Pattern Requirements" attitude scale consisted of 24 items and the "Leader Nutrients/NET Lending Library" scale consisted of 30 items. Each item required the respondent to indicate his/her level of agreement, from "strongly disagree" to "strongly agree," with a belief statement. The attitude scales were designed to retrospectively pretest and posttest attitudes at a single point in time, three months after the workshops. This was accomplished by listing the belief statements twice; on the first page, participants were asked to respond in terms of their current feelings and on the second page they were asked to respond in terms of how they felt before the workshop. This technique is frequently used to assess training effectiveness, and it has been used consistently in all NET workshop evaluations.

As with the knowledge tests, no pilot testing was conducted. Content-specifications tables were used to protect validity, and readability was assessed with Frye's method. Minor wording changes were made so that readability was at the approximate ninth-grade level.

In spite of adherence to the usual NET approval process for using an instrument, the "Meal Pattern Requirements" attitude scale

initially contained a typographic error that made the Likert anchor points range from "strongly disagree" to "agree" back to "strongly disagree." Some respondents made it clear that they understood a "5" should have meant "strongly agree." However, to ensure the collection of useful data the error was corrected, and a repeat mailing was sent to acknowledge the mistake and ask participants to complete an accurate form. They graciously did so, and only data from the corrected attitude scale was used to evaluate the "Meal Pattern Requirements" workshop.

Training Evaluation Form

DHS routinely uses a training evaluation form to assess participant satisfaction with in-house seminars and workshops (form 4316). It asks participants to rate five distinct aspects of training on four-point Likert-type scales ranging from "not at all" to "very well." In addition, the program evaluator judged the favorableness of any comments written on the forms by participants in relation to a five-point Likert-type scale, with values ranging from zero ("strongly negative") to four ("strongly positive"). The scale mid-point was assigned whenever no comments were written.

DESIGN AND METHODS

Knowledge

A repeated measures (pre-, post-, and follow-up tests) quasi-experimental (treatment group only) design was used to evaluate changes in participants' knowledge over time. Both criterion-referenced and inferential statistics were applied to the group data; item-level data were studied only in terms of preset criteria. Specifically, a repeated measures analysis of variance (ANOVA) was used to statistically infer the significance of changes in the day home sponsors' knowledge. NET staff had selected a criterion of 70 percent correct responses as "acceptable" performance, and 90 percent correct responses as "ideal" performance on the test. These equated to raw scores of 11 and 14 items correct, respectively. These same criteria (70 or 90 percent correct responses) were applied to the item-level data to determine whether or not the group had mastered individual item content.

As noted above, all three forms of the knowledge test were used at each data collection point (before, after, and 3 months after the workshops). All participants were asked to complete the follow-up test due to their relatively small number (NET typically had requested only a sample of all participants to complete follow-up assessments).

Attitudes

A repeated measures (retrospective pre-, posttest) quasi-experimental (treatment group only) design also was used to evaluate improvements in participants' attitudes over time. A repeated measures analysis of variance was computed upon data from each of the two attitude scales. Criteria for "acceptable" and "ideal" average responses were preset by NET program staff at 4.0 and 4.5, respectively. The percentage of participants making such average ratings before and after the workshop was compared to assess the extent of group changes in attitudes. Average ratings to each item were examined in relation to these criteria, as well, to discern potential problem areas.

The attitude assessments were conducted at the same time as the follow-up assessments of knowledge, 3 months after each workshop in the series. All participants were asked to complete the pertinent attitude scales.

Satisfaction

A one-time, posttest-only design was used to assess participant satisfaction with each workshop in the series. Participants were asked to complete the training evaluation form (DHS form 4316) at the conclusion of each session. NET program staff had pre-determined that "acceptable" ratings on the form were those averaging 3.0 or higher, and that "ideal" ratings were those at or above an average of 3.5: the percentage of respondents meeting these criteria for each workshop was examined.

RESULTS

The two workshops for day home sponsors led to mixed results in the domains of knowledge, attitudes, and satisfaction. A summary table of results is shown on page 10.

Table 1

EFFECTIVENESS OF NET WORKSHOPS FOR DAY HOME SPONSORS

	Meal Pattern Requirements	Leader Nutrients/ NET Lending Library
Knowledge tests (Pre-, post-, follow-up)	n.s.*	+
Attitude tests (Retrospective pre-, posttests)	+**	n.s.
Satisfaction***	+	+

* The "n.s." indicates a finding of no statistical significance.

** The "+" indicates a statistically significant improvement over time.

*** The results in this domain are criterion-referenced only.

KNOWLEDGE

Both of the multiple-choice tests used to assess participants' knowledge of workshop content were found to possess high levels of internal consistency. For the "Meal Pattern Requirements" test Cronbach's alpha was .89, and for the "Leader Nutrients/Lending Library" test it was .94. Item-total correlation coefficients were such that all items were retained for scoring.

Factor analyses were completed with the data from each test. The "Meal Pattern Requirements" test was found to contain two factors with eigenvalues above 1.0 that accounted for 44 and 10.1 percent of the variance in its test scores, respectively. Items which loaded most heavily on Factor 1, in descending order, were #7, #13, #6, #10, and #15 (all the test items loaded on this factor). Items which loaded most heavily on Factor 2 were #3, #11, #8, #2, and #1. Nearly all of the items in the latter group pertained to specific meal pattern requirements or more technical aspects of the CCFP, whereas the items that loaded most on the first factor seemed to reflect a more general understanding of menu planning for good nutrition. Because these areas are closely interwoven--the CCFP meal pattern requirements are predicated upon the basic food groups--this duality to the test seemed reasonable.

Unlike the first test, the "Leader Nutrients/NET Lending Library" test was comprised of a single factor (eignvalue = 10.49) that accounted for approximately 68% of the variance in scores. Such a finding is to be expected when test construction is guided by a single content-specifications table, so that areas covered in the workshop are tested with appropriate emphasis (e.g., numbers of items).

A repeated-measures analysis of variance (ANOVA) was used to assess changes over time in participants' performance on the "Meal Pattern Requirements" test. In spite of the relatively high number of people taking the test each time (51 at pretest, 46 at posttest, and 31 at the follow-up assessment), only 19 cases of matched data were available for use in the ANOVA. These showed no statistically significant changes over time. The mean raw scores for the three test administrations were 7.1 (s.d. = 5.2), 5.8 (s.d. = 5.4), and 5.9 (s.d. = 5.1), respectively, out of a maximum possible raw score of 15.

Clearly these average raw scores were low. When group performance was examined in relation to NET's preset criteria for "acceptable" and "ideal" performance (raw scores of 11 and 14,

respectively), it is obvious that the participants failed to achieve even minimally satisfactory scores on the test. On any given administration of the test, about one-third of the respondents were answering at or below chance level (e.g., they should have answered about 3 of the 15 items correctly just by guessing). Thus, for whatever reason, the "Meal Pattern Requirements" test appeared to be too difficult for the day home sponsors.

Inspection of item-level data revealed that certain questions were answered correctly less often than would be expected by chance. Item #9, which required the examinee to identify which of five foods was richest in iron, was missed by all but about 10-12 percent of respondents on the pretest and on the follow-up test. Performance on item #14, about the two most important factors in determining whether or not a meal is reimbursable, remained close to chance level at all three administrations of the test. Performance on item #5, about the correct components of the infant meal pattern for lunch, also was very weak on the follow-up test.

Although no items on the posttest or follow-up test could have been considered "mastered"--defined as answered correctly by 70 percent or more of the test-takers--there were some areas of relatively better performance. For instance, more than half of the posttest and follow-up test respondents correctly answered these items: #1, about sections of the Food Buying Guide; #2, about allowable meat alternates at lunch; #3, about reimbursable snacks; and #11, about identifying leader nutrients.

A second ANOVA was computed using scores from the "Leader Nutrients/NET Lending Library" workshop. In this case, the numbers of individuals taking each administration of the test on the day of the workshop was fairly high (37 at pretest, 42 at posttest) while the number returning completed follow-up tests was low (N = 18), even after a second written request from the evaluator. Yet, because this number represented nearly half of the maximum number of matched pre- and posttest scores (37) it was considered an adequate response rate for completing the repeated-measures ANOVA.

The statistical analysis confirmed that significant improvement had occurred over time: F (2, 24) = 9.4249, $p < .001$. At pretest, the participants answered an average of 8.8 items (s.d. = 3.2) correctly out of 15; by posttest, average performance was 12 correct (s.d. = 2.5); and the average follow-up test score was 12.3 (s.d. = 2.7).

Unlike the "Meal Pattern Requirements" knowledge test, this one appeared to have an appropriate level of difficulty. The

criterion-referenced data bear this out: acceptable performance was demonstrated by about 35 percent of the pretest respondents, by approximately 79 percent of the posttest respondents, and by 72 percent of the follow-up respondents. Ideal performance was achieved by fewer than 3 percent of the pretest takers, by about 33 percent of the posttest takers, and by more than 44 percent of the follow-up test takers. At posttest and follow-up, all examinees were performing above chance level.

Item-level data showed that, by the time of the follow-up assessment, participants had failed to master only two items. Both of them, #4 and #13, pertained to the leader nutrient iron; one was about the number of milligrams of iron needed each day by healthy 4- to 6-year-old children, and the other about foods that are rich in iron. This item paralleled item #9 on the "Meal Pattern Requirements" knowledge test, although in this case performance was substantially above chance level (61 percent answered correctly, as opposed to about 10 percent on the "Meal Pattern Requirements" test).

Conversely, performance on two other items surpassed the criterion for an ideal outcome. These were items #1 and #6, about (respectively) the best way to complete a sample menu, and dietary fiber. Acceptable levels of mastery were achieved on all remaining follow-up test items.

ATTITUDES

The attitude scale for the "Meal Planning Requirements" workshop was considered to be reliable (Cronbach's alpha = .79). Item-level statistics indicated that all 12 items should be retained for scoring and subsequent analysis. No factor analysis was performed with these data, however.

A repeated-measures ANOVA was calculated in SPSS-X to determine whether or not statistically significant improvements had occurred in participants' attitude scale scores (N = 30). With average scale scores of 52.5 (s.d. = 4.8) and 53.9 (s.d. = 3.9) on the retrospective pretest and posttest, respectively, the ANOVA confirmed that there was a positive, significant change: F (1,29) = 9.2873, $p < .01$.

Criterion-referenced analyses also indicate that the "Meal Pattern Requirements" workshop was successful in the domain of attitudes. NET staff had preset criteria for "acceptable" outcomes as an average item rating of 3.5 or higher (a minimum raw score of 42), and for "ideal" outcomes as an average item rating of 4.0 or higher (a minimum raw score of 48). Over 96 percent of the respondents had "acceptable" scores on the retrospective pretest; all of the respondents met this criterion on the posttest. Nearly 87 percent of them surpassed the criterion for "ideal" outcomes on the retrospective pretest; the percentage meeting this criterion increased to slightly more than 93 by the posttest.

Item-level data showed a similar level of success. Only one posttest item failed to meet the criterion for an ideal outcome: #7, regarding the complexity of the meal pattern requirements. Yet even its average rating (3.75) exceeded the cutoff for "acceptable" attitude outcomes. Thus, unlike the domain of knowledge, the "Meal Pattern Requirements" workshop apparently was highly effective in improving participants' attitudes.

The attitude scale for the "Leader Nutrients/NET Lending Library" was less internally consistent than the scale for the first workshop (Cronbach's alpha = .69), but was considered acceptable for the purposes of this study. All 15 items were retained in the scoring of retrospective pre- and posttest scales.

A repeated-measures ANOVA was employed to assess the statistical significance of changes in respondents' answers over time. For all 16 matched cases, the pretest average score was 62.0 (s.d. = 4.6) out of a maximum score of 75; the posttest average was 63.2 (s.d. = 3.6). These averages were not statistically significantly different.

The criterion-referenced analyses suggest that the sample size may have influenced the ANOVA results. Over 93 percent of the respondents had made "acceptable" scores on the pretest (a minimum raw score of 52.5 or higher), and all of them met this criterion on the posttest. Similarly, about 73 percent achieved "ideal" scores (raw scores of 60 or higher) on the pretest while over 81 percent did so on the posttest.

Item-level data revealed some interesting information. Participant ratings to only one item were below an acceptable average of 3.5: they indicated a lack of satisfaction with the extent of their knowledge of nutrition ($\bar{X}$ = 2.6, s.d. = 1.1). The three items about the NET lending library received average ratings that met the "acceptable" criterion only, whereas all other posttest items received ratings above the criterion for an "ideal"

outcome. Therefore, it seems that the "Leader Nutrients/NET Lending Library" workshop was somewhat less successful in the domain of attitudes than it was in the domain of knowledge--the reverse of findings for the "Meal Pattern Requirement" workshop.

SATISFACTION

Only criterion-related analyses were completed with the data from the training evaluation form (DHS form 4316). NET staff had selected a cutoff of average item ratings of 3.0 (out of a maximum of 4.0) as signifying an "acceptable" outcome, and average item ratings of 3.5 or higher as representing an "ideal" outcome. Nearly 73 percent of the 48 respondents gave the first workshop "acceptable" ratings, while almost half--47.9 percent--gave it "ideal" ratings. In addition, 21.2 percent wrote comments on their forms which the evaluator judged to be favorable, 75 percent either did not comment or wrote neutral comments, and nearly 4 percent wrote comments judged to be negative. With regard to the second workshop, over 85% of the 42 respondents gave it "acceptable" ratings while about 52% gave it "ideal" ratings. Comments on forms 4316 about the "Leader Nutrient/NET Lending Library" workshop were judged to be more favorable than those about the first workshop: only 2.3 percent had negative comments, 53.5 percent were neutral, and 44.2 percent were considered positive. Only one item had average ratings below the criterion for an acceptable outcome, and it concerned participation: the average response was 2.976 (within rounding of the 3.0 criterion). On the whole, then, day home sponsors could be characterized as being satisfied with the training they received in the NET workshops, and especially so with the second workshop in the series.

DISCUSSION

A total of ten analyses was completed to assess effectiveness of the day home sponsors' workshop series in the three domains of knowledge, attitudes, and satisfaction. Of these, six revealed positive outcomes while the remaining four failed to detect improvement. Of the two workshops evaluated, the second appeared to be better than the first: four of the five analyses completed

with its data showed favorable participant outcomes in knowledge, attitudes, and satisfaction.

Item-level data revealed some workshop weaknesses. In particular, sponsors had difficulty learning to identify foods that are rich sources of iron, even after attending both workshops. This difficulty is consistent with a larger problem identified in past NET studies: behavioral data drawn from the Child Care Food Program have consistently revealed that meals reported for reimbursement generally failed to provide children with sufficient amounts of iron. Thus, neither sponsors nor providers appear to possess sufficient knowledge--at least when it comes to the nutrient, iron--for children's nutritional status to improve in the immediate future.

T bright spots in the picture are these: first, while sponsors failed, as a group, to master content about iron, it is clear that substantial progress was made; and second, after the workshop the sponsors indicated dissatisfaction with the extent of their knowledge about nutrition. Returning to the first point, sponsors were able to improve their test performance from being systematically wrong--as fewer than about 10 percent answered pretest items about iron correctly--to being correct more than half of the time. Most educators would regard such improvement as dramatic, even if not yet satisfactory. At the same time, participants' dissatisfaction with the extent of their child-nutrition-related knowledge could be construed as positive and grounded in reality: armed with heightened awareness of their inadequate knowledge base, the sponsors may be more motivated to independently seek further knowledge, particularly since they have been informed of at least one valuable resource for doing so (the NET lending library), as well as having become legally responsible for giving technical assistance to day home providers.

A number of limitations affected the quality of this evaluation study as well as its interpretation. First, in the case of both workshops, only a very small number of matched data sets were available for inclusion in the analyses. Results cannot be generalized to other groups of NET clients, and caution is urged because the data may not adequately represent day home sponsors in Texas. Second, the knowledge test used to assess learning in the first workshop was apparently too difficult for the participants: the scores were not very far above what could be expected on the basis of guessing alone. Consequently, it is unknown whether or not progress was made that simply couldn't be detected by the test. Third, this study lacked a behavioral outcome measure. It might

have been instructive for NET staff to see how many participants translated their new knowledge of and attitudes about the NET lending library into values (as understood in social psychology, values generally are identified by consistency in both expressed attitudes and observable behaviors). However, as noted earlier in this report, insufficient resources were available for such data collection, and the N's in each design turned out to be so small as to have rendered it nearly impossible to interpret any further data.

In conclusion, when considered as whole, NET staff can be pleased with the early successes of the workshop series for day home sponsors. They may also choose to consider the following suggestions for strengthening the series:

* reassess the fidelity of the knowledge test-to-curriculum match for the first workshop;

* lower the readability level of the knowledge test for the first workshop;

* include more guided practice exercises in identifying foods that are richest in iron, and in accurately completing partial menus for optimum child nutrition;

* provide participants with exemplary cycle menus that fulfill CCFP meal pattern requirements and provide for adequate nutrition, so that sponsors and providers will be better able to recognize and match successful performance; and,

* consider providing periodic instructional "boosters" to day home sponsors in any of several forms (e.g., newsletters with tips about increasing children's intake of iron; having sponsors request question/answer sessions from area nutritionists under contract to NET), so that sponsors' knowledge base will remain current and any relative weaknesses can be strengthened.

APPENDIX A:

INSTRUMENTATION

LEADER NUTRIENTS/NET LENDING LIBRARY

Office Use Only
DHM 1989
Type
pre post flo
1 2 3
Version
(1) 2 3
Workshop ID:

Exercise:_____

Your Social Security Number:

_____ _____ _____

Today's date: Mo/ Da/ Yr

_____ _____ _____

DIRECTIONS: **Read each item carefully. For each item CIRCLE the number next to the ONE BEST ANSWER.**

1. Which of the following foods would be the best way to complete this lunch menu?

Grilled Beef Patty on Rye Bun

Cole Slaw _____?_____

Milk

1 Cantaloupe
2 Leaf Lettuce
3 Tater Tots
4 Cauliflower
5 Green Grapes

2. Which of the following sets completes this list of the ten leader nutrients: protein, riboflavin, carbohydrates, fat, and calcium?

1	2	3
vitamin A	carbohydrates	vitamin C
iron	iron	thiamin
fiber	vitamin D	niacin
vitamin C	vitamin C	vitamin A
thiamin	thiamin	iron

4	5
zinc	iron
vitamin D	phosphorous
iron	vitamin C
vitamin A	thiamin
fiber	vitamin A

3. The Recommended Daily Dietary Allowances (RDAs) are:

1 intended only for adults in this country.
2 required amounts for the adult population at nutritional risk.
3 recommended amounts only for children in this country.
4 designed to maintain good nutrition for nearly all healthy people in this country.
5 recommended amounts for the population at nutritional risk.

4. The RDA for iron for four- to six-year-old children is:

1 20 milligrams per day.
2 18 milligrams per day.
3 15 milligrams per day.
4 12 milligrams per day.
5 10 milligrams per day.

5. Large amounts of protein, riboflavin, and calcium are often found in the foods of which component?

1 the fruit/vegetable component
2 the milk component
3 the bread and cereals component
4 the meat/meat alternate component
5 the other foods component

6. Dietary fiber is:

1 one of the main sources of calories in our diets.
2 supplied primarily by the milk and dairy group.
3 beneficial to the functioning of the digestive system.
4 associated with increased risk of cancer.
5 absorbed into the body when food is digested.

7. Which of the following statements about water/fluid intake are <u>true</u>?

1 Children should be encouraged to drink plain cool/cold water throughout the day.
2 Milk and juices can help to meet the daily need for fluid intake.
3 Children need six to eight cups of water/fluid per day.
4 Children should drink water before, during, and after any physical activity.
5 All of the above are true.

8. Nutrient density refers to:

1 foods that are high in iron.
2 foods rated as USDA grade A.
3 foods containing starch, fats, and protein.
4 foods high in many nutrients relative to their calories.
5 all of the above.

9. Loan request forms for the Nutrition Education and Training (NET) lending library:

1 can be returned by mail.
2 do not always require catalog numbers.
3 require the borrower's signature.
4 need 10 days to be processed.
5 all of the above are true.

10. Which set of nutrient groups provides no energy?

1 fats, minerals, water
2 water, vitamins, minerals
3 minerals, fats, protein
4 vitamins, protein, water
5 carbohydrates, water, vitamins

11. Four-year-old Mark is having a peanut butter and jelly sandwich with a glass of milk for lunch. Which of the following would be the least desirable addition to that meal?

1 peach yogurt
2 carrot and celery sticks
3 raisins
4 frozen banana on a stick
5 orange slices

12. The NET lending library collection:

1 can only be used by people who have attended NET workshops.
2 requires borrowers to pick up materials in person.
3 is a good resource to use when you have to provide technical assistance.
4 charges borrowers for the service and all postage.
5 all of the above are true.

13. Which of the following foods is richest in iron?

1 beets
2 lima beans
3 tomatoes
4 baked potatoes
5 collard greens

14. Which of these meals contains the best balance of nutrients?

1 lean beef, cottage cheese, peach half, milk
2 rye bread, apples, cheddar cheese, milk
3 pinto beans, flour tortillas, white rice, milk
4 turkey and dressing, sweet potatoes, spinach, milk
5 peanut butter, saltines, dried apricots, milk

15. When returning items to the NET lending library:

1 you must pay the return postage.
2 the items don't need to be insured.
3 you must send them by overnight express.
4 you should mail them to the librarian.
5 the parcel should be marked "first class."

LEADER NUTRIENTS/NET LENDING LIBRARY

Exercise: _____

Your Social Security Number:

_____ _____ _____

Today's date: Mo/ Da/ Yr

_____ _____ _____

Office Use Only DHM 1989		
Type		
pre	post	flo
1	2	3
Version		
1	(2)	3
Workshop ID:		

DIRECTIONS: **Read each item carefully. For each item CIRCLE the number next to the ONE BEST ANSWER.**

1. Large amounts of protein, riboflavin, and calcium are often found in the foods of which component?

   1 the fruit/vegetable component
   2 the milk component
   3 the bread and cereals component
   4 the meat/meat alternate component
   5 the other foods component

2. The NET lending library collection:

   1 can only be used by people who have attended NET workshops.
   2 requires borrowers to pick up materials in person.
   3 is a good resource to use when you have to provide technical assistance.
   4 charges borrowers for the service and all postage.
   5 all of the above are true.

3. Loan request forms for the Nutrition Education and Training (NET) lending library:

   1 can be returned by mail.
   2 do not always require catalog numbers.
   3 require the borrower's signature.
   4 need 10 days to be processed.
   5 all of the above are true.

4. Which of the following foods would be the best way to complete this lunch menu?

Grilled Beef Patty on Rye Bun

Cole Slaw _____?_____

Milk

1 Cantaloupe
2 Leaf Lettuce
3 Tater Tots
4 Cauliflower
5 Green Grapes

5. Which set of nutrient groups provides no energy?

1 fats, minerals, water
2 water, vitamins, minerals
3 minerals, fats, protein
4 vitamins, protein, water
5 carbohydrates, water, vitamins

6. The Recommended Daily Dietary Allowances (RDAs) are:

1 intended only for adults in this country.

2 required amounts for the adult population at nutritional risk.

3 recommended amounts only for children in this country.

4 designed to maintain good nutrition for nearly all healthy people in this country.

5 recommended amounts for the population at nutritional risk.

7. Which of the following sets completes this list of the ten leader nutrients: protein, riboflavin, carbohydrates, fat, and calcium?

1	2	3
vitamin A	carbohydrates	vitamin C
iron	iron	thiamin
fiber	vitamin D	niacin
vitamin C	vitamin C	vitamin A
thiamin	thiamin	iron

4	5
zinc	iron
vitamin D	phosphorous
iron	vitamin C
vitamin A	thiamin
fiber	vitamin A

8. When returning items to the NET lending library:

1 you must pay the return postage.
2 the items don't need to be insured.
3 you must send them by overnight express.
4 you should mail them to the librarian.
5 the parcel should be marked "first class."

9. Which of the following foods is richest in iron?

1 beets
2 lima beans
3 tomatoes
4 baked potatoes
5 collard greens

10. The RDA for iron for four- to six-year-old children is:

1 20 milligrams per day.
2 18 milligrams per day.
3 15 milligrams per day.
4 12 milligrams per day.
5 10 milligrams per day.

11. Nutrient density refers to:

1 foods that are high in iron.
2 foods rated as USDA grade A.
3 foods containing starch, fats, and protein.
4 foods high in many nutrients relative to their calories.
5 all of the above.

12. Dietary fiber is:

1 one of the main sources of calories in our diets.
2 supplied primarily by the milk and dairy group.
3 beneficial to the functioning of the digestive system.
4 associated with increased risk of cancer.
5 absorbed into the body when food is digested.

13. Which of these meals contains the best balance of nutrients?

1 lean beef, cottage cheese, peach half, milk
2 rye bread, apples, cheddar cheese, milk
3 pinto beans, flour tortillas, white rice, milk
4 turkey and dressing, sweet potatoes, spinach, milk
5 peanut butter, saltines, dried apricots, milk

14. Four-year-old Mark is having a peanut butter and jelly sandwich with a glass of milk for lunch. Which of the following would be the least desirable addition to that meal?

1 peach yogurt
2 carrot and celery sticks
3 raisins
4 frozen banana on a stick
5 orange slices

15. Which of the following statements about water/fluid intake are true?

1 Children should be encouraged to drink plain cool/cold water throughout the day.

2 Milk and juices can help to meet the daily need for fluid intake.

3 Children need six to eight cups of water/fluid per day.

4 Children should drink water before, during, and after any physical activity.

5 All of the above are true.

LEADER NUTRIENTS/NET LENDING LIBRARY

Office Use Only DHM 1989
Type
pre post flo
1 2 3
Version
1 2 (3)
Workshop ID:

Exercise:_____

Your Social Security Number:

_____ _____ _____

Today's date: Mo/ Da/ Yr

_____ _____ _____

DIRECTIONS: **Read each item carefully. For each item CIRCLE the number next to the ONE BEST ANSWER.**

1. Which of these meals contains the best balance of nutrients?

   1 lean beef, cottage cheese, peach half, milk
   2 rye bread, apples, cheddar cheese, milk
   3 pinto beans, flour tortillas, white rice, milk
   4 turkey and dressing, sweet potatoes, spinach, milk
   5 peanut butter, saltines, dried apricots, milk

2. Which set of nutrient groups provides no energy?

   1 fats, minerals, water
   2 water, vitamins, minerals
   3 minerals, fats, protein
   4 vitamins, protein, water
   5 carbohydrates, water, vitamins

3. When returning items to the NET lending library:

   1 you must pay the return postage.
   2 the items don't need to be insured.
   3 you must send them by overnight express.
   4 you should mail them to the librarian.
   5 the parcel should be marked "first class."

4. Dietary fiber is:

   1 one of the main sources of calories in our diets.
   2 supplied primarily by the milk and dairy group.
   3 beneficial to the functioning of the digestive system.
   4 associated with increased risk of cancer.
   5 absorbed into the body when food is digested.

5. The RDA for iron for four- to six-year-old children is:

1 20 milligrams per day.
2 18 milligrams per day.
3 15 milligrams per day.
4 12 milligrams per day.
5 10 milligrams per day.

6. The Recommended Daily Dietary Allowances (RDAs) are:

1 intended only for adults in this country.
2 required amounts for the adult population at nutritional risk.
3 recommended amounts only for children in this country.
4 designed to maintain good nutrition for nearly all healthy people in this country.
5 recommended amounts for the population at nutritional risk.

7. Which of the following foods would be the <u>best</u> way to complete this lunch menu?

Grilled Beef Patty on Rye Bun

Cole Slaw _____?_____

Milk

1 Cantaloupe
2 Leaf Lettuce
3 Tater Tots
4 Cauliflower
5 Green Grapes

8. Loan request forms for the Nutrition Education and Training (NET) lending library:

1 can be returned by mail.
2 do not always require catalog numbers.
3 require the borrower's signature.
4 need 10 days to be processed.
5 all of the above are true.

9. The NET lending library collection:

1 can only be used by people who have attended NET workshops.
2 requires borrowers to pick up materials in person.
3 is a good resource to use when you have to provide technical assistance.
4 charges borrowers for the service and all postage.
5 all of the above are true.

10. Which of the following statements about water/fluid intake are <u>true</u>?

1 Children should be encouraged to drink plain cool/cold water throughout the day.
2 Milk and juices can help to meet the daily need for fluid intake.
3 Children need six to eight cups of water/fluid per day.
4 Children should drink water before, during, and after any physical activity.
5 All of the above are true.

11. Which of the following sets completes this list of the ten leader nutrients: protein, riboflavin, carbohydrates, fat, and calcium?

1	2	3
vitamin A	carbohydrates	vitamin C
iron	iron	thiamin
fiber	vitamin D	niacin
vitamin C	vitamin C	vitamin A
thiamin	thiamin	iron

4	5
zinc	iron
vitamin D	phosphorous
iron	vitamin C
vitamin A	thiamin
fiber	vitamin A

12. Which of the following foods is richest in iron?

1 beets
2 lima beans
3 tomatoes
4 baked potatoes
5 collard greens

13. Nutrient density refers to:

1 foods that are high in iron.
2 foods rated as USDA grade A.
3 foods containing starch, fats, and protein.
4 foods high in many nutrients relative to their calories.
5 all of the above.

14. Four-year-old Mark is having a peanut butter and jelly sandwich with a glass of milk for lunch. Which of the following would be the least desirable addition to that meal?

1 peach yogurt
2 carrot and celery sticks
3 raisins
4 frozen banana on a stick
5 orange slices

15. Large amounts of protein, riboflavin, and calcium are often found in the foods of which component?

1 the fruit/vegetable component
2 the milk component
3 the bread and cereals component
4 the meat/meat alternate component
5 the other foods component

We're evaluating the **LEADER NUTRIENTS/NET LENDING LIBRARY** workshop you attended in July. Your answers will help the Nutrition Education and Training (NET) Program improve the workshop. Please use the enclosed postage-paid envelope to return the completed questionnaire to us by **October 6, 1989**. Thank you for your help!

SECTION 1: Please CIRCLE the number that best describes how you feel about each of the following statements.

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. The NET Lending Library is a good idea but it's too much trouble to use..	1	2	3	4	5
2. The NET Lending Library is useful to me in giving technical assistance to providers.	1	2	3	4	5
3. I am reluctant to borrow from the NET Library because I know very little about it.	1	2	3	4	5
4. If foods are high in fiber, providers don't need to worry about the iron or fat content of the meals they serve.	1	2	3	4	5
5. Children should have their favorite foods served by providers rather than be asked to try new foods.	1	2	3	4	5
6. If the correct USDA food components are served at each meal, nutrient content can be disregarded.	1	2	3	4	5
7. There is no need to worry about iron in children's diets.	1	2	3	4	5
8. The USDA meal pattern requirements are too strict.	1	2	3	4	5
9. I feel I know enough about nutrition to give technical assistance to providers.	1	2	3	4	5
10. I am satisfied with the extent of my knowledge about nutrition.	1	2	3	4	5
11. It doesn't matter if providers give children the chance to try new foods.	1	2	3	4	5
12. An adequate diet is important to a child's well-being.	1	2	3	4	5
13. It bothers me when the meals served by providers are not interesting and varied.	1	2	3	4	5
14. The opportunity to learn about nutrition should be available in day homes.	1	2	3	4	5
15. I encourage day home providers to help children learn good eating habits.	1	2	3	4	5

SECTION 2: Please CIRCLE the number that best describes how you felt BEFORE THE WORKSHOP about each of the following statements.

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. The NET Lending Library is a good idea but it's too much trouble to use.	1	2	3	4	5
2. The NET Lending Library is useful to me in giving technical assistance to providers.	1	2	3	4	5
3. I am reluctant to borrow from the NET Library because I know very little about it.	1	2	3	4	5
4. If foods are high in fiber, providers don't need to worry about the iron or fat content of the meals they serve.	1	2	3	4	5
5. Children should have their favorite foods served by providers rather than be asked to try new foods.	1	2	3	4	5
6. If you serve the correct USDA food components at each meal you never need to worry about the nutrient content of the food.	1	2	3	4	5
7. There is no need to worry about iron in children's diets.	1	2	3	4	5
8. The USDA meal pattern requirements are too strict.	1	2	3	4	5
9. I feel I know enough about nutrition to give technical assistance to providers.	1	2	3	4	5
10. I am satisfied with the extent of my knowledge about nutrition.	1	2	3	4	5
11. It doesn't matter if providers give children the chance to try new foods.	1	2	3	4	5
12. An adequate diet is important to a child's well-being.	1	2	3	4	5
13. It bothers me when the meals served by providers are not interesting and varied.	1	2	3	4	5
14. The opportunity to learn about nutrition should be available in day homes.	1	2	3	4	5
15. I encourage day home providers to help children learn good eating habits.	1	2	3	4	5

THANK YOU!

APPENDIX D

UPDATING THE NET LENDING LIBRARY COLLECTION

August 1989

Maria D. Whitsett
Texas Department of Human Services
Office of Strategic Management, Research and Development
Research and Evaluation Division (232-E)
P.O. Box 149030
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EXECUTIVE SUMMARY

BACKGROUND AND PROBLEM STATEMENT

One of the four current goals for NET lending library states: "Add materials to the lending library collection and modify procedures as needed to encourage maximum use." Several activities in federal fiscal year 1989 have been directed towards this goal. This report describes (a) the process used to identify and eliminate poorly performing items from the collection and (b) efforts to obtain further information from the process that could assist program staff in making future acquisitions for the collection.

PROCEDURES

A one-page checklist was developed to identify the poorest performing items out of a pool of 213 likely candidates. Its interrater agreement and internal consistency were assessed and cutoff scores were established by the project coordinator. Those items with scores above the cutoffs were removed from the library collection. Then, a content analysis was completed with random samples of 50 reviews of items removed from the collection and 50 reviews of items kept in the collection. The program evaluator then identified themes that distinguish between the two groups of reviews.

RESULTS

Acceptable levels of internal consistency ($\underline{r}$ = .6004) and interrater agreement ($\underline{r}$ = .69) were obtained with the checklist. The cutoff scores led to the elimination of 80 poorly performing items from the collection. These were either donated to interested parties (such as area day care centers) or destroyed if they were in very poor condition. In addition, certain other items which had been catalogued separately in the past were recatalogued into manila file folders as single items. Thus, fewer than 100 of the

original 213 items were returned to the collection. Content analysis identified six themes that distinguish between items kept in the collection and items eliminated from it. These were: (a) apparent degree of flexibility, (b) perceived comprehensiveness, (c) number of target groups specified, (d) identification of specific shortcomings and strengths, (e) presence of value-laden terms, and (f) potential for incurring additional costs.

DISCUSSION AND CONCLUSION

Despite some clear limitations, the checklist fulfilled its purpose of eliminating the poorest performing items from the NET lending library. Findings from the qualitative study were logically consistent with those of the checklist and may help inform future decision-making when program staff select new items for the library.

BACKGROUND AND PROBLEM STATEMENT

Since the Texas Department of Human Services (DHS) assumed responsibility for the Nutrition Education and Training (NET) program from the Texas Education Agency in 1979, it has provided a lending library service for use by residents of the state. The NET lending library is designed to support several program goals and objectives, as identified in the 1988-1989 operating plan:

1.1 To reach at least 1,000 children during each of 1988 and 1989 in presentations based on materials borrowed from the NET lending library collection.

2.2 To reach 350 teachers in presentations based on materials borrowed from the NET lending library collection during 1988 and 1989. The majority of these presentations will be made by other teachers and food service personnel who are regular patrons of the NET library.

3.5 To reach 250 food service personnel in presentations based on materials borrowed from the NET lending library collection.

4.2 Add materials to the lending library collection and modify procedures as needed to encourage maximum use. By 1989 at least 30 child care and school staff per month will borrow items for use in presentations to children, other staff at their facilities, or for their own nutrition learning. The library will be recognized by its users and by nutrition and health professionals as a valuable resource for current information and materials to support nutrition education and food service management.

Past inconsistencies in goal attainment

In past evaluations, the NET lending library has shown some inconsistencies in its goal attainment. For instance, the number of borrowers per month has increased dramatically over the last four fiscal years: there were 6 borrowers per month in 1985, 25 per month in 1986, 20 per month in 1987, and 50 per month in 1988. Yet, the library

failed to reach its 1988 participation goals for educators in public schools and child care centers and for food service workers in private schools and child care centers. Because the number of children reached--particularly in public schools--far exceeded the library's goals, the data suggested that a relatively small number of people were using the library extensively with youngsters in their schools and centers.

In an effort to broaden the appeal and perceived utility of the collection to more teachers and food service workers, NET program staff chose to make a concerted effort on Objective 4.2--to add new materials to the collection and modify procedures for using the library. Several discrete actions were taken to meet this objective.

First, NET staff reviewed the "User Feedback Form" included with each item borrowed from the collection. Estimates of the return rate for the form ranged from approximately 20 percent to 50 percent: underreporting was considered to be a problem. Consequently, the feedback form was revised, so that (a) the form would look less crowded to the borrower, (b) form completion would be streamlined, particularly when several items were checked out simultaneously, and (c) borrowers actually would have the opportunity to rate the substance and perceived utility of the item(s) they had used (as opposed to the check out and return procedures being rated on the old form). The revised form (see Appendix A) was put into use in late spring of the 1989 fiscal year.

Second, the NET project coordinator continued to acquire new materials for the lending library collection, making the collection more current and therefore more useful to those making child-nutrition-related presentations based on library items. Over 420 new items were introduced to the collection in federal fiscal year (FFY) 1988 alone. As purchasing continued into FFY 1989, the NET lending library had insufficient shelf space for the new items. The project coordinator was aware that some items in the collection were relatively old and borrowed infrequently. Thus, it was decided that these poorly performing library items should be eliminated from the collection to make room for new acquisitions.

The next decisions to be made concerned how to go about the process of identifying poor materials and whether or not any information could be gleaned from the process that would help the project coordinator in making future acquisitions for the collection. Rather than have the coordinator use solely professional judgment and go through the entire collection item by

item, the program evaluator suggested that a quantitative approach be developed for identifying items to be purged. After that was finished, the evaluator would complete a qualitative study of characteristics of the two groups of items (kept vs. purged), in an attempt to identify other differences between them. This report summarizes the results of those efforts.

Quantitative and qualitative studies needed to improve collection

PROCEDURES

LIBRARY ITEMS

Over 3,200 print and audio-visual items are maintained in the NET lending library collection. Of those, the NET library clerk and project coordinator were able to identify, prima facie, approximately 200 that were either relatively old, in poor condition, or had rarely been checked out (a color coding scheme indicates when each title has been borrowed). These items constituted the pool from which the "poorest" items would be purged. Several distinct types of materials were included in the pool: books or pamphlets, resource guides, curriculum guides, and teaching aids.

INSTRUMENTATION

The NET program evaluator developed a one-page checklist for the program staff to use in reviewing each of the items in the pool of likely candidates for deletion. The checklist (see Appendix B) required the NET staff to rate each item on its relative age, whether it met the goals of the collection, its relative physical condition, quality of packaging (e.g., clarity/quality of printing, professionalism of design), and so forth. Raters also were asked to note whether or not the item had ever been checked out.

METHODS

The NET project and workshop coordinators completed one checklist for each item in the pool of 213. In addition, they independently rated one sample of 50 items from the pool, so that the evaluator would have data needed to compute interrater reliability. It was recommended that the checklist not be used unless it demonstrated an acceptable level of interrater agreement, defined as a minimum of .60 for this study.

Interrater agreement was essential

Once the items had all been rated, the NET evaluator entered the checklist data into the Unisys mainframe computer. The ratings for each item were summed, and the resulting sums were weighted by a factor of two if the items had never been checked out from the collection. (In the judgment of the project coordinator, outdated items that had never been used were considered to be the least desirable.) Thus, items with the highest scores on the checklist would be targeted for elimination, while low-scoring items would be retained.

Frequency distributions of the final scores were generated for each type of item in the pool. The NET project coordinator selected cutoff scores for each type of material rated. The evaluator then generated lists of items whose final scores were at or above their respective cutoffs so that the project coordinator could purge them from the collection and begin to fill the resulting shelf space with new acquisitions.

For the qualitative study, the project coordinator selected a random sample of 50 library items whose checklist scores fell below the cutoffs (retained in the collection) and a second random sample of 50 scoring above the cutoffs (purged from the collection). The NET library clerk collected copies of the reviews of all 100 items, prepared by nutritionists under NET contract when the items were first acquired. These were examined by the NET evaluator to identify themes that distinguished between the two groups of materials.

RESULTS

FINDINGS FROM THE CHECKLIST

Initial data from the one-page checklist showed that it had a modest level of split-half reliability (N = 99, r = .6004) and a satisfactory level of interrater agreement (N = 50, r = .69; p < .005). Because of these preliminary findings, the program staff felt reasonably confident that final scores from the checklist could be used to purge the collection. The remaining 114 items in the pool were then rated with the checklist.

Checklist statistics were acceptable

The average checklist rating across all items in the pool was 5.3 (maximum score = 18), with a standard deviation of 2.9. The average rating for books was 6.0 (s.d. = 3.4); for resource guides it was 5.4 (s.d. = 2.9); for curriculum guides it was 7.9 (s.d. = 3.2); and for teaching aids it was 5.5 (s.d. = 2.3). The project coordinator selected the following cutoff scores: 3.0 for resource guides, 6.0 for books or pamphlets, 6.0 for curriculum guides, and 6.0 for teaching aids. The program evaluator generated lists of items with final scores above the relevant cutoff scores, and the project coordinator removed them (41 resource guides, 32 books or pamphlets, 7 curriculum guides, and 10 teaching aids) from the collection. These materials were either donated to interested parties (e.g., the new day care center for children of state employees or other area day care programs) or were destroyed if they were in very poor condition. Items with final scores below the cutoffs were returned to the collection. In several cases, items catalogued separately in the past (e.g., each in a series of pamphlets or posters) were recatalogued as one library item, so that fewer than 100 items were returned to the collection.

FINDINGS FROM THE ITEM REVIEWS

The evaluator identified six themes from the reviews (catalog annotations). Each theme can be thought of as a continuum. Not all reviews contain comments directly substantiating all six; the

themes emerge from studying the entire data set and considering the concepts behind the words. Therefore, this portion of the report is organized by theme, with quotations from the raw data and some brief discussion of each, in turn.

Theme 1. Apparent degree of flexibility

One recurring theme was the relative flexibility of the items --whether materials could be used for multiple purposes or in multiple ways. The following quotations illustrate the theme:

- "This publication was designed for use with diabetics and many other patients who require diet modification."
- "This curriculum guide... may have some useful ideas that can be adapted to other curricula."
- "Can be adapted to any grade level..."
- "This could be used in any health class..."

Contrasting comments include the following:

- "Only those materials designed for school food service personnel are included in this listing..."
- "A resource unit was prepared to educate 6th grade students about vegetables."
- "Limited use in educational setting."

Theme 2. Perceived comprehensiveness

Reviewers often mentioned the relative comprehensiveness of the materials being described. They noted when the scope covered was wide and when it seemed inadequate. Some examples can be found in these quotations:

- o "It... explains all program requirements..."
- o "A comprehensive directory listing..."
- o "...this extensive report..."
- o "...a complete listing of requirements and sources..."
- o "...very complete and well done."

Several annotations indicated the availability of materials in both Spanish and English, which could be linked to the perceived flexibility of the items (Theme 1), their comprehensiveness, or their packaging (see Theme 5). Examples of the opposite end of the continuum in the theme of comprehensiveness are the following:

- o "No nutrition information is given..."
- o "Would need to include further instructions when using this booklet."
- o "This booklet is not illustrated."
- o "...gives no outcomes or degree of success."
- o "...specific recommendations are not included."

Virtually all of the examples of errors of omission, as identified by the reviewers, were found in the annotations of materials that were removed from the collection.

Theme 3. Number of target groups specified

Reviewers listed the most likely target groups for each item. Because this theme is essentially quantitative, a check of the target groups listed in each annotation was made. A large majority of all the annotations listed multiple target groups--approximately 92 percent of those for deleted items listed multiple target groups, while about 94 percent in the other group did so. However, the average number of target groups differed: reviews of deleted items listed an average of approximately 2.8 target groups each, while those of items kept in the collection listed an average of about 3.7 each. This finding appears to be consistent with the first theme--the more flexible an item, the more likely it would seem that a variety of target groups (teachers, parents, educators) would be able to use it effectively.

Theme 4. Identification of specific shortcomings or strengths

This theme differs from comprehensiveness in that it focuses more on assets and limitations in style and presentation affecting ease of use, while Theme 2 is more closely linked to the substance or content of the items. Examples of shortcomings in materials that may impede their use include the following:

- "A few of the pages are difficult to read due to poor copying."
- "...small print..."
- "...somewhat disorganized and unpolished..."
- "Although good ideas are presented, the pamphlet and references are outdated."
- "...the layout is poorly done."
- "The presentation... is somewhat confusing."
- "Accurate information but poorly presented."

There are counterparts at the positive end of the continuum as well:

- o "This guide... is easy to read."
- o "This booklet is well organized... and is easy to use."
- o "Each topic is color coded for easy access..."
- o "...handy guide for parents."

Thus, it seems that the reviewers tried to gauge how much effort a borrower would have to expend in order to effectively employ the library materials.

Theme 5. Presence of value-laden terms in the annotations

Many of the reviews contained affect- or value-laden terms. This is not surprising, since one of the purposes of including annotations in a catalog is to convey a better sense of the richness of the materials. The reviews in the NET library catalog do just that, as can be seen in these instances:

- o "...gives excellent background information..."
- o "This guide is a must..."
- o "...good examples..."
- o "Delightfully written..."
- o "...valuable ideas..."
- o "...an excellent collection..."
- o "The listings are very good..."
- o "...great information..."
- o "...amusing..."

- o "...creative..."

- o "...a nice starter set."

The contrast in the frequency and intensity of terms used in the two stacks of reviews is readily apparent--not only were there fewer strongly positive adjectives in the annotations of items that were deleted, but many of these contained qualifying terms, as in these examples:

- o "...personnel might find this... useful."

- o "This appears to be a useful guide book..."

- o "...practices that might be useful..."

- o "...it may have some useful ideas."

- o "May not be up-to-date."

- o "May be helpful although there are many other reviews and resources that would be more complete."

It is possible that the wording of the reviews contributed somewhat to the low usage of these items but there are no data available to test this possibility.

Theme 6. Potential for incurring additional costs

The purpose of many NET library materials is to point the way towards additional nutrition education teaching aids, resources, and so on. Whether or not additional materials have fees or charges was often mentioned in the annotations. There were 24 mentions of cost issues in the 100 annotations; these were about evenly divided across the two groups (13 in reviews of items deleted from the collection, and 11 in reviews of items that were retained).

- o Of the 11 cost-related comments in the "keepers," most (10) indicated that resource items were available at no additional cost to the borrower.

- In contrast, 11 of the 13 cost-related comments in the other group indicated that charges of some sort would be incurred (e.g., "nominal charges," "ordering information," "information about fees," and so on).

As with Theme 5, one can speculate as to whether or not the mention of additional charges in the annotations may have dissuaded potential borrowers from checking out the items; but again, there are no data available for assessing this.

LIMITATIONS AND DISCUSSION

Because the checklist was constructed for one-time use with the Texas NET library, caution is urged before using it for another purpose. While its statistical properties appeared adequate for NET's purposes, it may not be generalizable to other libraries, or even to NET library items not included in the pool of likely candidates for deletion. Nonetheless, in this case the checklist did appear to serve the purpose of allowing identification of items that were poorest, overall, in that pool.

The results from this qualitative study are intuitively logical, in that each of the six themes extracted from the raw data appears to represent a fairly clear-cut continuum. Reviews for items deleted from the collection tended to cluster towards the negative ends of each continuum. In those instances where it was possible and appropriate to complete tallies, qualitative and quantitative findings agreed.

An issue remains--did adverse reviews cause or contribute to low item usage? Appropriate data to allow an answer to this question are not available, although it seems reasonable to assume that such a relationship may exist.

CONCLUSION

This study accomplished two tasks for the NET program: first, it enabled the project coordinator to update the lending library collection on a relatively objective basis and second, it identified a set of themes in library item reviews the project

coordinator may want to watch for in any further updating of the collection.

This is not to suggest that any item with evidence of less-than-positive characteristics should summarily be eliminated from further consideration; rather, the information provided in the six themes may enhance NET staff's decision-making tools when adding to the collection.

APPENDIX A: REVISED LIBRARY USER'S FEEDBACK FORM

NUTRITION EDUCATION AND TRAINING (NET) PROGRAM
TEXAS DEPARIMENT OF HUMAN SERVICES (MC 560-W)
P.O. BOX 2960, AUSTIN, TEXAS 78769

Please return this evaluation form with the materials you have borrowed.

Please give us feedback about the materials you borrowed, so that we will be able to meet your needs better in the future. CIRCLE THE NUMBER NEXT TO THE ANSWER YOU CHOOSE. If you borrowed several items at one time, fill out the complete form only for the first item; fill out only the starred (*) items on a new sheet for each item after that, and staple or clip the forms together. Thank you for your help!

Title of Borrowed Item: _____

Your Social Security Number: _____ Date: _____

1. For what type of agency do you work?

1 Public school
2 Private grade school or high school
3 Day care center
4 Family day home
5 Hospital
6 TDHS
10 Headstart
7 Other government agency: _____
8 College or university
9 Other agency: _____

2. What is your function?

1 Teacher
2 Food service worker
3 Food program specialist
4 Child development specialist
5 Nutritionist
6 Licensing representative
7 Medical personnel
8 Other: _____

3. Where did you learn about the NET library?

1 By attending a NET workshop
2 While at a professional meeting
3 While working at TDHS
4 From a friend or coworker
5 Other: _____

4. How did you use these materials?

10 As professional resource materials
20 For personal information
50 Borrowed but didn't use
60 Other: _____

As part of a presentation for:

31 preschool-aged children
32 children in grades K-3
33 children in grades 4-6
34 children in grades 7-8
35 children in grades 9-12
36 teachers
37 food service workers
38 parents
39 other client group
40 day care providers
41 family day home sponsors

5. Approximately how many people used or saw the materials? _____

6. What is your overall rating of:

	poor	fair	good	excellent
content/substance of the materials	1	2	3	4
usefulness of materials	1	2	3	4
your satisfaction with materials	1	2	3	4

PLEASE FEEL FREE TO WRITE YOUR COMMENTS AND SUGGESTIONS ON THE BACK OF THIS FORM.

APPENDIX B: THE LIBRARY ITEM CHECKLIST

Dewey # _____

Title _____

Category or Type _____

Subject or Theme (brief):

		Points
Date (publ./prod.)	_____ At least 5 years	(1)
	_____ 5 - 10 years	(2)
	_____ More than 10 years	(3)
Material fits with goals of the NET collection		
	_____ Yes	(0)
	_____ No	(1)
More recent edition desired		
	_____ Yes	(0)
	_____ No	(1)
Present in printed catalog		
	_____ Yes	(1)
	_____ No	(0)
Physical condition of material		
	_____ Poor	(1)
	_____ Acceptable	(0)
Quality of Medium		
	_____ Difficult to read	(1)
	_____ Poorly "packaged"	(1)

NET RESOURCES AND ACTIVITIES OVER TIME

Resources	FFY85	FFY86	FFY87	FFY88	FFY89
BUDGET	294,060	294,060	295,860	315,290	315,000
STAFFING					
Coordinator	1.000	.300	.125	.750	1.000
Program Specialists	2.000	1.500	2.000	2.000	2.000
Evaluator	1.000	1.000	1.000	.850	1.000
Clerical Support	3.000	2.670	3.000	3.000	2.500
Consulting Nutritionists	2.000	1.900	1.800	1.600	1.600
	9.000	7.370	7.925	8.200	8.100
Activities					
WORKSHOPS					
Developed	2	2	3	1	2
Conducted	165	145	185	183	112
LIBRARY					
Acquisitions			180	420	68
Items Circulated/Month	70	100	100	150	189
Borrowers/Month	6	25	20	50	60
Catalogs Distributed	10,000	12,000	680	200	632
MATERIALS					
Acquisitions	5	5	15		5
Distributions	9,700	10,800	12,800	17,200	11,800
SPECIAL PROJECTS					
Mini-grants/Development Contracts	3	3	2	0	1
Evaluation/Needs Assessment Studies	6	7	6	5	5
Persons Reached	6,200	9,700	10,900	10,300	23,343